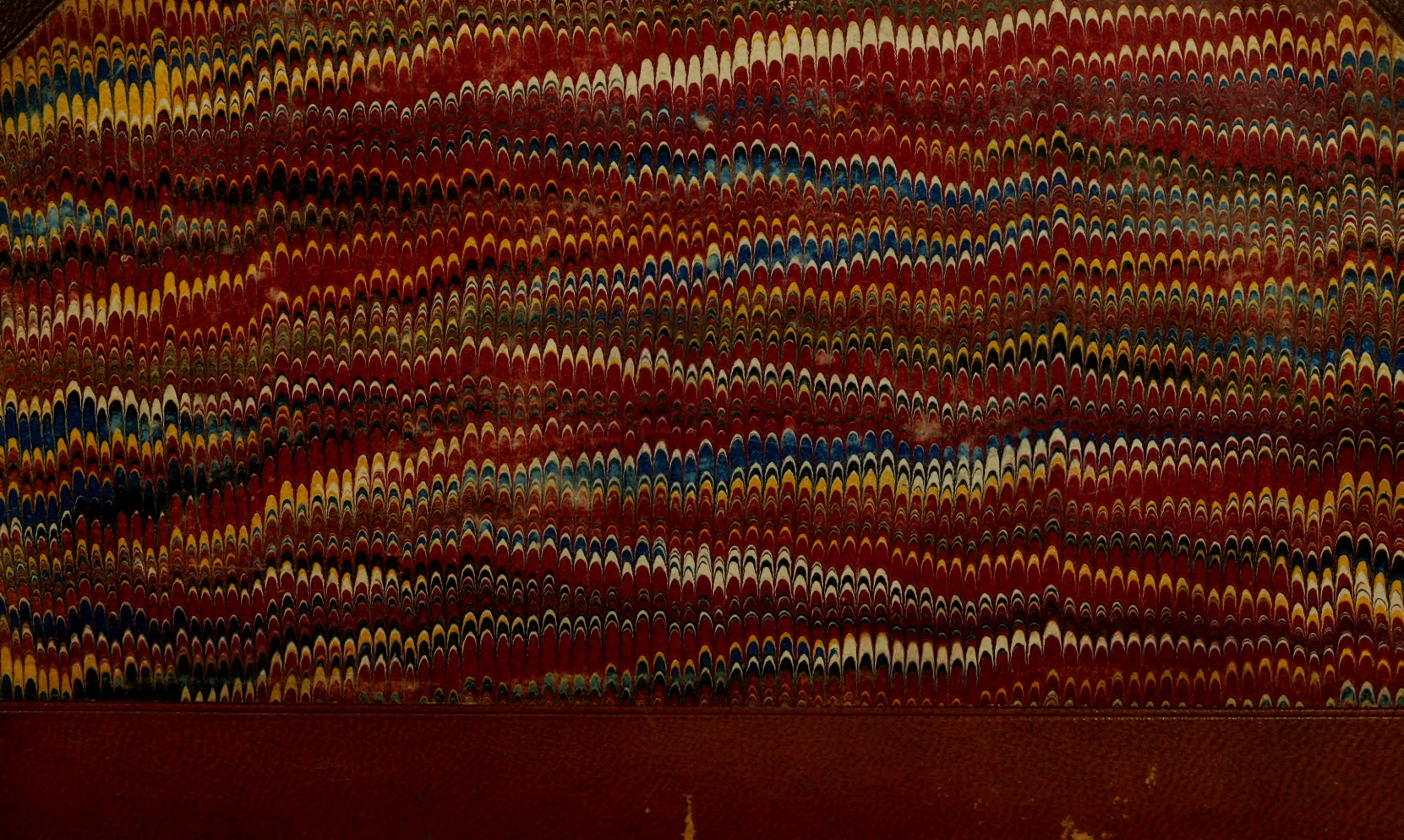

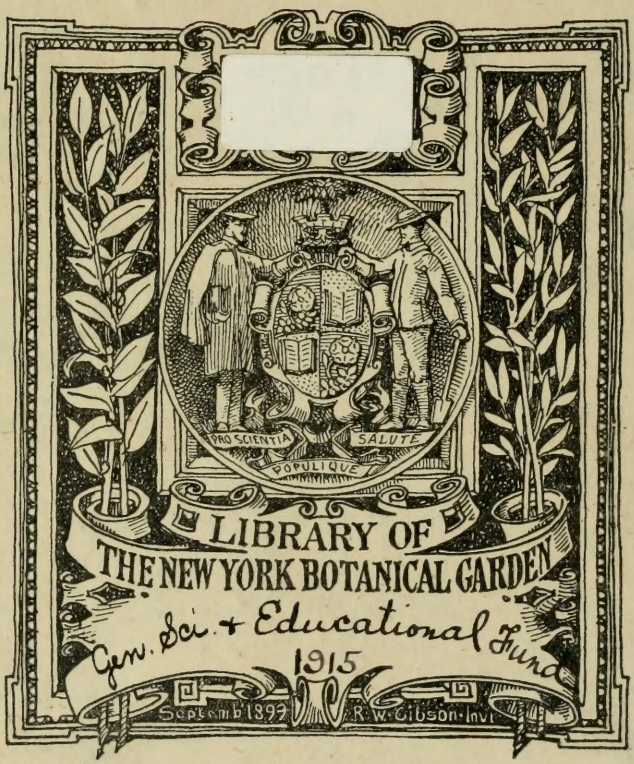
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MONTHLY REPORTS

OF THE

DEPARTMENT OF AGRICULTURE,

FOR

THE YEAR 1868.

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WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

JANUARY, 1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

WASHINGTON, D. C., *February* 1, 1868.

SIR: I herewith report, for publication, the following matter, collated in January, including subjects as follows: Special Statistics of Farm Resources and Products; Table of Yield and Prices of Farm Products; Productions of California; Greensand Marl as a Manure; the Potato Bug; Comparison of Imports of Dry Goods; Extracts from Correspondence; the Liverpool Wool Trade; Linseed Oil and Cake; Manures in Great Britain; British Imports of Russian Wheat; Prices of Flour in London; Condensed Milk in Europe; Roquefort Cheese; Prussian Agriculture in 1867; Various Matters; and Meteorology for December, 1867.

Respectfully,

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
Commissioner of Agriculture.

SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

A digest and analysis of returns, in response to the following queries, are herewith presented:

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?

2. What is the average value of wild or unimproved tracts of land? and what is the character, quality, and capabilities of such land?

3. What marked or peculiar resources have you in soil, timber, or minerals? and what is the state of their development, or inducement for attempted development?

4. What crops, if any, are made a specialty in your county? and what facts illustrating their culture, quantity, and the profit derived?

5. What kinds of wheat are cultivated? and which of them are preferred, and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?

6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?

7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

It was not expected that subjects involving so wide a range and so extensive a field should be exhausted, scarcely even approached, but the design was to show the results of peculiar and various causes affecting prices of farms and wild lands; to compare the length of the pasturage season in different States and the differing seasons and modes of wheat culture; with such isolated facts as might be deemed of interest relative to certain specialties of production. Returns have been general, and a mass of facts elicited, from which the following statements are condensed. The eastern and middle States are included in this number,

and the southern and western will be considered in the February issue, with deductions from all the facts presented.]

MAINE.

1. An increase in the value of farm lands since 1860 is reported from nearly every county in the State, though not equivalent, with few exceptions, to the appreciation of gold. In Piscataquis county this increase is placed at fifty per cent.; in Cumberland, forty; Androscoggin, Somerset, and Oxford, twenty-five; Waldo and Kennebec, twenty; Sagadahoc, ten; Penobscot, seven; York, five per cent.

In some localities farms have been thrown upon the market, owing to the scarcity of farm-labor, high taxes, and the opportunity to invest in untaxed government bonds. Increase in values is more marked in the vicinity of cities.

2 Tracts of unimproved land, divested of wood and timber to a considerable extent, of sandy soil, and growth of oak and pine, are held at from $1 to $10 per acre in Cumberland county. In Oxford county similar tracts, valued mainly for growing wood, are estimated at $8. In York rough pasture lands are worth $10 to $12. Average value of wild lands in Kennebec $12; growth, maple, beech, birch, pine, spruce, larch, and fir; cedar swamps becoming valuable; pine very remunerative; poorest lands swampy and ledgy, yet abounding in muck. In Somerset $5 per acre, the growth paying for the land In Lincoln $15, two-thirds of it good farming land. In Sagadahoc, at the mouth of the Kennebec, a lumbering county formerly, the average is put at $45, though timbered lands are worth $100. The soil, a clayey loam, is suitable for grass. In Penobscot $5. Wild lands in Piscataquis, the Moosehead Lake region, are somewhat rocky, yet capable of cultivation to some extent, and can be bought as low as $1 per acre.

3. The timber resources of Maine are not unknown. In Somerset county, west of Moosehead lake, lumber is yet abundant, mills plenty, and the product sent to market, the pine by water, the hard wood by railroad. Penobscot has been a great lumbering region, and has an abundance of peat. Cumberland county claims unsurpassed water power, awaiting improvement, "which will stimulate and develop the resources of the soil." Fine granite for building purposes abounds in Kennebec. Traces of iron are found in the rock formation, yielding a pigment used by mechanics in lieu of sienna. In Piscataquis are inexhaustible quantities of slate, plenty of iron, and some lead, silver, and gold. The iron interest, neglected during the war, is beginning to look up; slate quarries are doing a good business. The county lacks railroad facilities for the transportation of these products. York abounds in granite, and a fine article of trippli is worked.

4. In Waldo county, which has a soil well suited to the potato, the cultivation of this esculent is made a successful specialty. Hay and potatoes are extensively shipped from this region, and, in fact, from other sections of the State. In Kennebec the potato yield is estimated at 150 bushels per acre, worth $165 at the railroad depots.

In Oxford hops are considerably grown, one man (T. P. Duston, of Bethel) having produced 3,800 pounds from three acres, which he sold at home for $1,900.

In Lincoln county hay is said to yield a profit of $6 per acre. After planting with corn and potatoes, with applications of stable manure, lands are seeded to grass with some kind of grain; and lands not ploughed are top dressed with ashes, lime, plaster, and superphosphate of lime.

The wool business is prominent in Somerset, and fine-wool sheep more abundant than elsewhere.

5. Among the varieties of wheat preferred are Canada and Wisconsin, Bald Spring, White Malaga, Canada Club, &c. It is very little grown. The time

of sowing is reported in York, Lincoln, Waldo, and Piscataquis, "May first;" Somerset, "May;" Sagadahoc, "last of April;" and others indefinitely, "April and May." Time of harvesting. York and Lincoln, "August;" Waldo, "August 1st to 15th;" Sagadahoc, Penobscot and Oxford, "August;" Kennebec, "early in September;" Somerset, "September."

It is significant that most of the counties expressly report "none" of the wheat drilled, while no county is credited with any portion of the crop as drilled.

The crop is almost exclusively spring wheat. In Cumberland, within a few years, premiums have been paid on forty bushels per acre; "twenty-five or thirty years ago wheat was one of the most profitable crops of this county, but its culture was at one time almost abandoned, owing to the ravages of the weevil, but its disappearance has encouraged some farmers to attempt its cultivation again."

6. The cost of pasturage varies greatly in the different sections of the State. The highest rate reported is $8 per head for six months; in Penobscot and Lincoln, $6 50; Cumberland, $6; Sagadahoc and Lincoln, $5 for five months; Somerset, $4 for six months. Pasturage for sheep is placed at fifty cents per month in Oxford county. About seven months feeding per year is required—from the end of October to the end of May. Red top, white clover and June grass, with other grasses, furnish the summer pasturage.

7. Apples are produced abundantly and cheaply throughout the State. A correspondent in Oxford mentions a small orchard from which $800 has been received. In Lincoln, instances of a yield of 200 bushels per acre are given, with a net profit of $50.

Hardy varieties of pears and grapes are grown in the southern counties. The Hartford Prolific, Concord, Delaware and Creveling, if laid down and covered in the winter, have ripened and yielded well.

NEW HAMPSHIRE.

The returns of this month from New Hampshire are unusually meagre, representing but three counties—a fact to be deplored, as many facts concerning special industries, and mineral and other resources would be interesting.

1. The increase in the value of farms is stated at 15 per cent. in Cheshire county; 10 per cent. in Sullivan and Belknap. The tendency, however, in the latter is said to be downward. The increase is generally attributed to the currency and the activities induced by the war. The growth of manufacturing has had a tendency to render farm property more valuable, but this extension enlarged the labor demand and raised the price to such an extent that farmers could not compete, and farms are neglected. But the difficulty is owing to spasmodic rather than healthy increase of manufacturing, and in a still greater degree to the emigration of the farming class to the rich lands of the west, making efficient farm labor scarce and high.

2. In Belknap the value of unimproved lands varies from $10 to $75 per acre. Manufacturing villages of recent growth and the building of lines of railroads have wonderfully increased the value of wood or pasture lands in immediate proximity, which were previously of little value. In Cheshire an average of $25 per acre is noted, the most valuable furnishing timber and hemlock bark. Wild lands in Sullivan are generally rocky and hard, much of it upon hills and mountains, more remote from railroads, and are worth about $5 per acre. If cleared up they would be of some value for grazing purposes.

4. No specialties of importance are reported. Hay in most sections is the principal crop. In some localities potatoes are extensively and profitably grown for shipment.

5. Spring wheat is almost exclusively grown. The varieties are almost as

numerous as the producers. Drilling is not practiced. Sowing is done from April 20th to May 20th, according to the soil and season. Harvesting commences between the 20th and the last of July, and continues to the middle of August.

6. The cost of grazing cattle in Sullivan is estimated at $3 50 per head for six months; in Belknap, about the same for the season, from May 20th to October 20th. In Cheshire the price is $4 for six months.

7. New Hampshire is an uncertain region for fruit production. Apples have sometimes been profitably grown. Belknap claims to be a good county for fruit, and with some show of especial reason, on account of the great extent of water surface in the system of small lakes south of the White mountains. One firm delivered in the town of Laconia, the past season, $3,000 worth of fruit trees. It is estimated that $10,000 has been expended in this county in ten years (mostly in five) for pear trees. One man in the town above mentioned receives $500 annually for pears and plums grown on two acres near the lake.

Grapes are grown in very favorable locations. One Isabella vine, near a lake in Belknap, produces annually 2,000 pounds of fruit. The vine is 22 years old, has 11 main branches from the same root, and a total length of vine of about 1,300 feet. It is located on high ground, a mile from the water, soil hard and rocky, the site well protected against winds. The soil is manured with a top dressing of well-rotted stable manure; the vine is laid down but not covered in winter, and the fruit generally ripens and sells for 20 to 40 cents per pound. This statement is reported by O. A. J. Vaughn, of Laconia.

VERMONT.

1. The increase in the value of farms ranges from 10 to 30 per cent.; the latter in Orleans county, the former in Bennington and Essex. Orange, 11; Addison, 15; Grand Isle, 12 per cent.

2. Unimproved lands are highest in Addison, a good section of the State, and a county famous for sheep husbandry, in which pasture lands are in demand. The average value of wild lands in this county is placed at $20; $5 in Essex; $6 to $8 in Washington; $8 to $15 in Orange; $10 in Orleans. In some of the counties these lands lie mostly among mountains, with a rough and rocky surface, and are well timbered with hemlock and spruce. The opening of railroad facilities and the establishing of lumber companies have doubled the value of timber lands in many places. Spruce, basswood, birch, cherry, white ash, butternut, and other species are used for lumber.

3. The disintegration of rock containing carbonate of lime is the source of fertility to soils in the western part of the State, and deposits of muck and peat abound. Soapstone, serpentine, chrome, and iron are found in Orleans. In Orange are copper mines, which have been worked to some extent. A slate quarry has recently been opened in West Randolph. In Monkton, Addison county, an extensive bed of kaolin is worked profitably. In Northfield, Washington county, granite and slate are largely manufactured for building purposes. Marble quarries are worked to advantage in Grand Isle and Rutland.

4. Grass, oats, potatoes, and wheat are the most reliable sources of profit to the farmer. A common rotation in Washington is as follows: First year, corn or potatoes; second, oats or wheat, (mostly oats;) then grass six or eight years. In one or two towns in Orleans hops are extensively grown; in some others potatoes, at the rate of from 100 to 300 bushels per acre. In three or four of these 50,000 bushels have been sold for starch, at thirty to thirty-seven cents per bushel. Dairies are sources of much income. Many Orleans farmers obtain 200 pounds of butter per cow. In Grand Isle wheat is assumed to be profitable, costing $1 50 per bushel, yielding at the present time $2 35, or a profit of eighty-five cents per bushel; and oats fifty cents, selling now at eighty cents.

5. Soule's winter wheat, and Siberian and Black Sea spring varieties, are preferred in some counties, on account of early ripening, by which rust and the midge are escaped. Scotch Fife is common in Orange. In Addison, Canadian White-flint, Red-chaff, and Red Mediterranean are sown in autumn, and in spring the Black Sea, Berlin, &c. The "Gold-drop" gives good satisfaction in Orleans, where spring wheat is grown exclusively, and the practice of bringing seed wheat from the west is common, and productive of good results. In Washington the Canada Club is preferred, as less subject to rust or mildew; Tea and Black Sea are also grown.

Winter varieties are sown about the last of August or first of September, and harvested the last of July. Spring wheat is put in from the last of April to the 20th of May, and harvested in August. Our Orleans correspondent says he never saw a wheat-drill in the county; that the crop is reasonably sure if sown early, and the acreage is increasing, though but half the local supply is produced. The reporter in Orange alludes to using a one-horse drill last year, the first drilling of wheat of which he has any knowledge in New England. In Addison, summer fallowing usually precedes the sowing of winter wheat, and for spring sowing the ground is usually manured and ploughed in the fall.

6. Pasturing costs from $4 50 to $6, and in Bennington it is estimated at $8. About six months, or from five to six, is the average length of season, and $1 per month about the average price.

7. Reports are not generally favorable concerning fruits; apples, pears, and small fruits are produced with some success.

MASSACHUSETTS.

1. The increase in values, in most of the counties, is estimated at about an equivalent of the increase of gold—in some localities, less—in a few others, a little more. The largest increase has been in Berkshire, amounting to fifty per cent.; in proximity to villages, seventy-five per cent.; in remote locations, thirty-five—about the same as in 1860, if calculated upon a gold basis. The attention of business men in New York has for several years been directed to the mountain air and scenery of Berkshire, and their improvements have increased the value of lands, especially in the vicinity of towns.

2. Some unimproved lands in Worcester county are reported at the low price of $6 per acre. Woodlands in Barnstable may be found at $5 per acre. In Hampden, rocky and swampy lands, with a sparse growth of wood, are worth $5. In Bristol are swamps which are rising in popular estimation, and are regarded, when reclaimed, as the most valuable grass lands in that region. In Suffolk are salt marshes worth, when ditched and made available for hay, $50 per acre. Swamps in Middlesex, susceptible of drainage, are made to yield large crops of Indian corn, potatoes, oats, or grass. Different classes of unimproved lands are thus estimated: Woodlands, cleared, $16 per acre; swamp lands, capable of drainage, $30; peat meadow, $75. These prices are greater than those of Barnstable, Bristol, and Hampden, by reason of proximity to Lowell and a circle of smaller manufacturing towns. In Berkshire, the best pine, hemlock, and chestnut growth are valued at $250 per acre; lands less densely timbered, at $50 to $75; in less accessible districts, among the mountains, the best woodlands, at $100; an average of $100 per acre for timber lands. When divested of timber, the roughest and most rocky tracts are scarcely worth more than $5 per acre. The planting of the locust is recommended as a profitable disposition of such lands.

3. Peat meadows are receiving much attention. Many have passed into the possession of manufacturing companies. The peat is pressed in a machine, dried, and used for fuel, especially in furnaces. In the town of Mansfield, Bristol county, a mine of inferior coal exists, not now worked. The varieties of timber common to New England are utilized most fully, but few peculiar resources of

soil or minerals contribute to the wealth of this State. The Berkshire mountain district, of varying elevation, averaging, perhaps, 1,500 feet, is underlaid with talcose mica, with detached ledges of lime. East of the Taconic is a limestone range, upon which are the towns of Adams, New Ashford, Lanesboro', Lee, Pittsfield, West Stockbridge, Egremont, and Sheffield, furnishing very good marble. The white marble of the national Capitol was obtained from this section. The Girard College, at Philadelphia, was furnished from Egremont. East of this lime ledge is a vein of hematite iron ore, probably extending from Vermont into New York, by a southwesterly trend. In Richmond is a mine that has been worked extensively for forty years, and is yet valuable. The Cheever mine, in the same vicinity, is successfully worked. The "Leet" has been continuously worked for thirty years, furnishing ore for furnaces in Richmond, Lenox, Hudson, (New York,) and other furnaces. Lime is largely manufactured in South Stockbridge, and sold at fifty cents per bushel for building purposes, while the lime ashes are readily purchased by farmers at seventeen cents per bushel. East of Lenox mountain the limestone and iron ore again occur, and to some extent in Stockbridge, Barrington, and Sheffield.

4. Grass is universally regarded as the most profitable farm crop. Indian corn, oats, and potatoes, are prominent. Gardening, near towns, is practiced successfully. Productions of the farm, orchard, and garden generally take as wide a range as the climate admits. For Suffolk county, the following statements are made: Hay yields 3,000 pounds to the acre; rye, cut and threshed by hand to save the straw, (worth as much as hay,) yields thirty bushels and 4,000 pounds of straw; cabbage, cultivated in rows, 8,000 per acre; potatoes, drilled in by plough, in rows thirty inches apart, every eye being cut separate and dropped nine inches apart in the row, from 200 to 300 bushels per acre, at thirty per cent. profit.

5. Wheat is little grown. Spring varieties are mostly sown. There is no report of the drill. The Tappahannock, from the Department of Agriculture, has been successful in some places as a winter wheat. In Bristol county some success has attended the culture, and twelve to sixteen bushels per acre obtained. The most popular varieties are some that have been disseminated by the department.

6. Pasturage in Suffolk county costs about $2 per month for neat cattle. In Barnstable, six months in pasture costs $8; in Worcester, $6; in Hampden, five months, $4. The season runs from five to six months, though some herds obtain a partial subsistence for a longer period. In the mountain pastures, June grass gives an early bite; orchard grass is also early and continues longer; red top is common, as also white clover.

7. As in other sections of New England, the apple crop is becoming precarious in Massachusetts. "Formerly there was a great quantity of apples, but of late years they have been blighted by the drought, worm, and other causes," is the record in Hampden; and "Berkshire," it is said, "in olden times was noted for its extensive apple orchards, but the old fixtures, planted by the early settlers, have nearly passed away." Many in this section of the State, as in more eastern counties, are putting out new orchards, and striving to secure a return of the old abundance. The canker worm has been very destructive for several years. Pears have met with some success here, and still greater on the eastern coast, and especially in the vicinity of Boston, where the soil and climate seem well adapted to their culture, which is made very remunerative, prices ranging as high as $20 per barrel. They yield well in Bristol, upon a stratum of clay found there. Peaches have nearly failed of late, as well as cherries.

RHODE ISLAND.

1. The increase in farm values is scarcely sufficient to cover the depreciation of currency. Newport county is reported at 33 per cent.; Bristol 25; Kent

10; Washington 7 per cent. Occasionally a wealthy gentleman will purchase a farm at a price exceptionably high for amateur or fancy farming, the advance being limited by the demands of the seller or the fancy or wealth of the purchaser.

2. There is necessarily but little unimproved land in Rhode Island. In the southern part of the State are swamp or bog lands that can be obtained at $10 per acre. There are rough lands in Kent of little value but for wood, worth $15. There is a little rocky or swampy land in Bristol and some woodland, nearly all of which is pastured. No wild lands are reported in Newport.

3. Few peculiar resources exist in this State. An inferior quality of anthracite coal is found in Kent and Bristol, offering no inducements for working. A mine is worked in Newport and found useful for smelting purposes. The soil of Bristol county is dark, heavy, with a stiff sub-soil deficient in sand, but strong and productive when properly manured and cultivated, and it does not leach. The soil of Newport is kept fertile by fish and seaweed fertilizers from the waters of Narragansett bay, from the shores of which the extreme borders of the county are scarcely three miles distant. A mixed husbandry is practiced to meet the demands of the home market.

4. The grass and hay crops are reckoned of most value, and generally used on the farms in the production of milk, butter, beef, and mutton. Potatoes and onions are in some localities cultivated for the West India market, with less profit of late than usual on account of the potato blight and onion maggot. Gardening on the borders of the Narragansett bay is found remunerative for the supply of neighboring manufacturing villages in Rhode Island and Massachusetts. Thirty tons of good manure, costing four dollars per ton, will secure, with proper care, five hundred bushels of onions and four hundred of carrots if not injured by smut and maggot. The onions are planted the first of April in rows twelve inches apart; the carrots on the first of June between the hills of onions, every third row. The onions are harvested about the first of August, when the carrots have ample time to mature. A crop of 10,000 bushels of potatoes and onions in 1867 are reported from Bristol county.

5. Very little wheat culture is attempted. Other crops are more remunerative as well as more abundant and certain. The White Flint, Tappahannock, White Mediterranean, and other kinds have been tried in Newport, but with little success. A red variety, which succeeded best, in the hands of the reporter, gave 16 bushels per acre on soil that would yield 50 to 60 bushels of corn or oats or 40 to 50 of barley.

6. Pasturage for the season of six to seven months is far more expensive in the more populous and improved portions of the State. It is estimated at $20 for Newport; Bristol $15; Washington $10; Kent $9.

7. Fruit culture is becoming precarious. Insects are more numerous. The canker worm and other insects are doing much injury to orchards and vines, especially near the salt water. Extremes in temperature in spring are injurious. Small fruits are fine and remunerative. The Rhode Island Greening, once the glory of all orchards, is not now produced in perfection.

CONNECTICUT.

1. Little change in the prices of lands is noticed, further than is caused by the difference in value of currency, except in proximity to growing manufacturing villages. In Windham county, it is claimed, prices of lands have varied little in fifty years.

2. A very small extent of swamp or peat lands are found in Hartford county. Their value is from $15 to $40 per acre. Muck is extensively used as a fertilizer. Small tracts of woodland sell for $25 to $150 per acre. A larger area of uncultivated land is found in Windham county, partly wooded, of some value

for pasturage, worth, on an average, $18. In Litchfield are rough pasture lands of low value and woodland valued at $20 to $50, according to the growth. In Tolland there is very little unimproved land.

3. Iron, copper pyrites, and silver are reported in Hartford county, but are not worked. In Litchfield county there are valuable beds of iron ore, the manufacture of which consumes most of the wood in the northwestern part of the county. The soil of the Connecticut valley is a productive alluvial; west of the river is a belt of rich clay loam; still further west is a good region for grazing and general farming; other sections contain the usual variety of soil and surface found in Massachusetts and Rhode Island.

4. Tobacco is a specialty in the vicinity of the Connecticut. A gross product of $1,000 per acre is sometimes realized; $300 to $600 are regarded as paying yields. The quantity obtained is often 2,000 pounds per acre. From $300 to $450 per acre profit on onions is occasionally received, upon a yield of 600 to 700 bushels. The growing of garden seeds by societies of Shakers and by joint-stock companies is extensively engaged in, and profits are presumed to be large. Corn and wheat are not generally profitable crops.

5. Wheat is scarcely worth mention, so little is produced, though both winter and spring varieties do very well, with proper care; red Mediterranean is generally preferred, as less liable to rust or lodge. It is sown from the first to the middle of September. It is sometimes put in after corn and potatoes, but generally follows tobacco. But a small proportion is drilled—not exceeding one-tenth.

6. The cost of pasturage in Windham county is placed at 30 cents per week, or $7 50 per season; in Hartford, $9; in Tolland, 16; in Litchfield, dairy cows 50 cents per week. Stock is usually pastured about six months, yet not exclusively more than five to five and a half months.

7. Fruit is more successful and abundant than in many other sections of New England. Apples are of the most importance, and some farmers can pay the entire expense of cultivating their farms with the proceeds of their sale. Peaches are less successful than formerly, being injured in many places by the "yellows." Pears, plums, cherries, and grapes are grown with fair success; and a large amount of small fruit, in the aggregate, is produced, and a portion sent to the New York market. In Litchfield peaches and plums are reported uncertain.

NEW YORK.

1. The average increase in the value of farms, upon the basis of thirty-two counties reported, is 28 per cent. It is not to be expected that land will fluctuate with the movements of the gold market; prices of real estate did not go up with the extraordinary rise in gold in 1864, nor fall with the tumble of metallic currency in 1865; and when specie payments shall be resumed, there is little probability that prices of farms will again recede in New York to the figures of 1860. The average of 28 per cent., in view of all the causes affecting values of real property, indicates an actual increase at the present time of, say, 15 per cent. since 1860; less in remote country places, but much more in the vicinity of towns. The tendency to congregate in towns is apparently greater than before the war or at any former period, and it is observed alike in all parts of the country. It is so, too, in Great Britain, though such has long been the case there; and it is especially the fact in France, causing much loss to production, and no little anxiety for the bread supply and the real welfare of the whole population. The increase is generally greater along the central lines of railways than elsewhere, is marked in Herkimer and other dairy districts, and greatest in the vicinity of Rochester, where it is estimated at 100 per cent.

In Seneca county the selling price is at least one-third greater than it was in 1860, and the anxiety to invest in real estate is becoming very marked. Farms which could readily have been bought for $70 now command $100 per acre. The improved methods of farming have been the main cause—under-draining

to a large extent, clearing, increasing the manure pile by feeding of stock, and the greater value placed upon the grass and hay crops. Some farms have been very much improved by the turning of the little creeks on the high lands for the purpose of irrigating, and the low lands are bettered by under-draining.

In Chautauqua county, many farms that, seven years ago, could have been bought for $50 per acre, would sell now for $150 per acre.

2. The reports of local averages of unimproved lands reduced to a general average, give $32 as the value of such lands in the State. In some cases they are more valuable than cultivated lands; in the mountains of the Adirondack region, and other mountainous localities, tracts of wild lands are found at low prices. In the more populous sections unimproved lands, with the exception of wood and timber preserves necessary to each farm, are either very hilly or swampy. In the northern part of Oneida the north woods, a wild tract of spruce with a very poor soil, is worth but $5 per acre. In the Catskill mountains, land valued only for bark and timber is held at the same rate. As near New York city as Dutchess county are mountain lands valued at only $10 to $20 per acre. There is a wild tract in Herkimer containing about one hundred thousand acres, worth from fifty cents to five dollars per acre, very hilly, full of lakes, and wooded with hemlock and spruce—a great resort for hunters and fishermen in appropriate seasons for such game. In Suffolk (on Long Island) is a large tract which produces quantities of cord-wood, 100,000 cords having been shipped from a single town (Brookhaven) in a single year, estimated at $8 per acre. In Washington county unimproved lands are valued at $3 per acre. Woodlands, in counties supplied only with wood lots reserved upon farms, are often the most valuable portions of farms, as in Livingston and other counties. In Monroe such lands are worth from $60 to $200 per acre.

3. The peculiarities of soil and minerals are too well known for particular mention. Timber that is conveniently accessible is getting scarce and valuable. In the western part of the State prices of wood and timber are rapidly increasing; in Ontario county the best lumber is worth $40 to $50 per M, and wood $4 per cord. Lumbering operations are rapidly reducing the supply. Millions of feet of the most valuable ship timber were hauled to the St. Lawrence river from Jefferson, rafted down to Montreal and Quebec, and sold to England for a trifle, and now the want of building timber is, or soon will be, felt severely.

In Westchester marble for building purposes is largely quarried and shipped to New York; and peat is also abundant, though unworked. A large amount of labor is employed in Warren in procuring bark for tanneries, and logs are floated down the branches of the Hudson for manufacture at Glenn's Falls, Sandy Hill and Fort Edward; there are also marble quarries successfully worked at Glenn's Falls. In Livingston and Greene plaster beds have been in process of excavation for several years, greatly to the advantage of agriculture in their vicinity. Cement and plaster beds have recently been discovered in Schoharie. In Ulster 700,000 barrels of cement were manufactured during the season. At least $1,000,000 capital is invested in quarrying Hudson river bluestone, which is shipped to all parts of the United States. Silver and lead are found in Dutchess county. Lime and building stone are valuable resources of Jefferson county.

4. A few items concerning special industries are extracted from returns of correspondents. During the war the flax interest became prominent, and some thirty mills were erected in Washington county; the business has greatly declined. In the central and eastern portions of the county potatoes are made a specialty, the yield being estimated at 1,000,000 bushels, of which 800,000 reached a market before winter set in, at 80 cents to $1 per bushel. Winter cars are fitted with stoves, and farmers were receiving $1 10 per bushel in December. The cost of culture is reckoned at $20 per acre, and the yield varies from 100 to 300 bushels. Some farmers have made almost fabulous

profits in producing the Goodrich and other new varieties. The most profitable in Kings county is said to be potatoes, upon highly manured ground, the product being marketed very early; and a second crop of cabbages, turnips, or wheat seeded. The rent of land for gardening is sometimes $25 to $50 per acre. In Queens and other counties near New York city, gardening and potatoes are the main specialties. In Dutchess and Westchester hay is valued as a profit-giving product.

In the southern portion of Oneida county the growing of hops is a prominent interest, but it was a failure last year on account of the prevalence of the hop louse. In Schoharie county 4,000 acres of hops are reported. Otsego generally produces $750,000 worth. Madison is also in the hop business, the yield averaging 600 pounds, at $150 profit per acre. Dairying is extensively followed in Cortland and Herkimer, and farmers are generally prosperous. In Wayne peppermint culture is very profitable; upon low-lying lands the yield thirty to forty pounds of oil to the acre.

The lake region generally enjoys great variety in agriculture, produces fruit, beef, wool, butter, cheese, and finds a profit in so doing. Dairying has much increased of late. In Jefferson the manufacture of Limburg cheese, introduced by German residents, has benefited the county greatly. Farms of 200 acres, besides furnishing bread for the family, will support twenty cows that will yield a product of cheese worth $1,000. Grape-growing is successful in Chautauqua, on Lake Erie, as well as in Niagara and Lake Ontario counties.

5. Red Mediterranean is most common. White Mediterranean frequently reported, with a large number of other varieties, as White Michigan, Tappahannock, Soule's, Amber, Black Sea, Scotch Fife, White Flint, Blue Stem, Gold Drop, China Tea, Diehl, Canada Club, Treadwell, &c. By far the greater part of the returns indicate the Mediterranean varieties as preferred, on account of hardiness and greater exemption from insect attacks. Such preference is expressed in Chautauqua, Niagara, Seneca, Oneida, Tioga, Madison, Suffolk, Fulton, Onondaga, Wayne, Schoharie, Westchester, Dutchess, Ulster, Queens, and many others. In Otsego and Ontario the Soule is most popular, as more productive than White Flint, and of better quality than Mediterranean. In Kings, the Amber wheat, deemed less liable than others to rust, is preferred. In Livingston, White Michigan is the most favored variety, on account of its hardiness. In Jefferson, three kinds of wheat are cultivated, chiefly: 1. Black Sea, yielding twenty to twenty-five bushels per acre twenty years ago, but giving scarcely half as much now, yet retained because it is hardy and bears late sowing well. 2. China, formerly of high repute, producing excellent flour, but greatly diminished in yield and beginning to be neglected. 3. Fife or Scotch, cultivated still, though reduced in yield. The Genesee valley, once famed throughout the country for its yield and quantity of wheat, has greatly declined in both of these particulars. The destructiveness of insects, and the failing reputation of the flour produced, attest the deterioration of the soil, and the unskilful culture which led to such a result.

In Genesee, wheat is mostly drilled, on summer fallows, ploughed in June or July, and worked fine with harrow and gang-plough. In Ontario, the same practice prevails; and clover sod and spring grain stubble are sometimes ploughed under for a wheat crop. Either summer fallowing, or fertilizing with stable manure, are practiced in Cortland. In Jefferson, after a crop of corn, peas, or potatoes, and sometimes grain, even wheat, the land is ploughed in the fall, and the seed sown on the surface in the spring, and dragged in, and sometimes rolled if the soil is dry. Before the midge made its appearance, good crops of winter wheat were produced. The reporter says: "About the year 1847 the devastation by this destructive insect became so great that we had to quit raising this kind of wheat. Its yield dwindled down to nothing. Then we substituted spring wheat. Within a year or two some of our enterprising farmers

ventured to sow winter wheat, with tolerable success. This encouraged others so much that the whole crop of last year's raising was used for seed last fall. The yield was from 15 to 20 bushels to the acre, and sold at from $2 50 to $3 per bushel. The kind raised was mostly the Red-bearded Flint." In Livingston, where wheat is a staple, a somewhat more thorough culture obtains. Ninety-five per cent. of the seed is drilled; the ploughing is from seven to ten inches deep; cultivating and harrowing carefully precede the drill, and the result is, wheat is the principal crop of the county. In Kings, the custom is to sow on the furrow with grass seed, and harrow twice. The best success is obtained in Madison after peas. A top dressing with lime, ashes and fine stable manure is applied when greensward is turned. One-third of the winter wheat is sown after spring grain, in Niagara. In Chautauqua, corn is followed by oats or barley. The stubble is ploughed in August, manured, and drilled with 1½ bushels of wheat to the acre.

Our correspondent in Onondaga says: "Wheat is here mostly sowed after barley or oats, though a clover sod is much preferred, with twice ploughing and sufficient harrowing, to very thoroughly pulverize the soil; and if about eight loads of well-rotted manure are added per acre, we can expect from 20 to 40 bushels. Necessity has forced us to a better mode of culture, and more thorough tillage, but, as a whole, there is room still for improvement, though I am informed, by one who has spent this season abroad, that only portions of France and England are any better cultivated than our lands in this section of New York."

The use of the drill may be taken as an index of the thoroughness of culture. Some counties report twice the amount of cultivating that is given in others, and the yield is correspondingly increased. Enough is shown to prove that the only reason for a product only half that of English wheat-growing, and for most of the loss from insects, and for poor quality of flour, is careless, insufficient culture.

The time of sowing winter wheat is variously given: commencing in Chautauqua, Steuben and Tioga, in August; in nearly half the counties reported, September 1st; in Albany, Westchester, Cortland, Wayne, Ulster, Dutchess, and others, 5th to 15th; Kings, October 1st—closing prior to September 20th and 25th, in most cases; in Livingston, Chautauqua, Dutchess, Fulton, and others, October 1st; in Queens, October 20th. The spring varieties are put in about the last of April or first of May—the period being extended in some cases to May 15th; in Jefferson, to May 20th.

6. In the northern part of the State, the season for pasturage is but five and a half to six months. A few counties on the lakes and on Long island report seven months; the majority, six months. The average varies little from six months for the entire State. Sheep will find good feed for a longer period than cattle.

The prices of pasturage vary greatly. Among the rough and isolated portions of the northern wilderness, the price averages about one dollar per month; in Livingston, Chenango, Cattaraugus, Genesee, Suffolk, Washington, and other counties, from six to eight dollars per season; in Tioga, Chautauqua, Albany, Ontario, Madison, Marion, Schenectady, Delaware, Monroe, and Otsego, eight to ten dollars; in Cortland, Wayne, Oneida, Schoharie, Dutchess, Fulton, Niagara, Jefferson, ten to fourteen dollars; in Herkimer, Onondaga, and Seneca, fifteen dollars; in Queens, near New York city, on Long island, twenty-eight dollars, or four dollars per month.

A great variety of grasses are named, common to most of the States in this latitude, prominent among which are redtop, white clover, and June grass.

7. Western New York is more generally engaged in fruit culture than any similar area in any other portion of the country. A correspondent in Monroe county, claiming for that section unequalled facilities for transportation of fruits,

by lake, canal, and railroad, thus writes: "Apples and grapes seem best adapted to our section, but pears, peaches, quinces, cherries, and plums are largely raised. In fact, nearly all the fruits of northern latitudes do well here. This county is also largely in the business of growing fruit trees. Some nurseries of nearly one thousand acres of young trees, and many more of over one hundred acres, are in this vicinity. As to facts in fruit culture: the writer had, upon a trifle less than one-fourth of an acre, fifty-three barrels of Baldwin apples, two years ago; sold for $5 per barrel—$265 for the lot. The same ground produced forty-seven barrels this season; sold for $3 50 per barrel—$164 50 being the product of less than one-fourth of an acre. This variety, the Baldwin, bears only alternate years here. The present year my vineyard, of two acres, produced 11,240 pounds of grapes, (not a large yield,) which sold at about 12 cents per pound."

The Jefferson correspondent gives the following facts illustrating the influence of large bodies of water in fruit-growing: "There is a marked difference in the capabilities for fruit of the southern and northern parts of our county. While the section south of the Black river is, in most of its towns, well adapted to fruit, particularly to apples, the towns lying north of the river produce them only in a few localities in quantities to make their culture profitable, and those localities are situated along the shores of Lake Ontario and its bays, and on the river St. Lawrence. At some distance back from the shore fruit trees are very short-lived. They will grow rapidly for a few years, bear a few good crops, then decline, or die off suddenly. Whether the cause of this is in the soil or in the climate, I am unable to say; it is found, probably, in both combined. Our soil consists of clay and loam, underlaid by limestone, generally deep enough for the plough, but occasionally cropping out in ledges. We have long and cold winters. Our summers are hot, and frequently dry, and these circumstances combined may be unfavorable to the life of fruit trees. By selecting the most favorable situation in regard to soil and shelter, and by deep drenching and draining the land, and with proper after-care and attention, some farmers have secured a good prospect of success."

From Ulster, $100,000 worth of strawberries were last season shipped to the New York markets, and at least $200,000 worth of whortleberries from the Shawangunk mountains. From $400 to $1,000 worth of small fruits are sold from an acre. Destruction of plum trees by black knot is reported in Kings. The same disease has also attacked cherry trees. Favorable accounts of pears are received from Queens, especially as to the Bartlett and Lawrence. It is stated of Westchester that apples, formerly abundant, are scarcely ever grown. The only sorts produced with any success are the Russet and Greening. That peaches and plums cannot be raised, but that pears are comparatively successful. Good apple orchards in Livingston produced an average of $100 per acre. Apples are abundant in Tioga, and a large amount of cider is made, selling at $6 per barrel. Apple orchards yield $100 per acre in Steuben, at $2 per barrel at home. In the towns of Pultney and Urban, grapes yield $600 per acre in some cases, averaging $350 per acre. Pears do well in Onondaga. Old apple trees are dying out and many new orchards are being planted, though they do not yield as formerly. The cutting away of forests is suggested as the reason of the change. The culture of grapes is being greatly extended in Seneca, especially on the lake shores, and is found very profitable.

The Genesee correspondent says: "Our soil and climate are capable of producing all the different fruits, but apples are principally raised for export. Their cultivation has proved profitable and orchards are extended. I here give the yield and profit of the orchard of my neighbor, Hon. John W. Brown, for the past three years, as a fair sample of the county: Extent 2½ acres; near 100 trees, planted about 45 years ago; about one-half ingrafted with winter fruit,

and a fair variety of summer and fall fruit. He sold in the three years as follows:

In 1865, $600 00, used at home	$100 00	$700 00
In 1866, 275 00, used at home	80 00	355 00
In 1867, 430 00, used at home	100 00	530 00
Total for three years		1,585 00

Also the product of one tree of Northern Spy apples:

In 1865, yield 11 barrels, at $4 00 per barrel	$44 00
In 1866, yield 3 barrels, at 3 50 per barrel	10 50
In 1867, yield 5 barrels, at 3 00 per barrel	15 00
Total of one tree for three years	69 50

"This orchard has not been ploughed for over thirty years, and has not been very properly trimmed. He has been at no expense save gathering and marketing the fruit."

"Ontario produces good apples, pears, peaches, plums, cherries and grapes. Apples are somewhat affected by insects, pears with the blight, plums with the black knot, and cherries by the curculio; while grapes have proved a success. This town, Naples, has about 500 acres in bearing, and from $300 to $800 per acre has been realized, while smaller vineyards have produced larger profits. The kinds principally cultivated are the Isabella, Catawba, Delaware, Concord, and Diana."

The following extract is from the Niagara report: "Our apples are noted for good flavor and long-keeping qualities, Chicago buyers often paying from $1 to $1 50 more per barrel here than for the same kinds in Michigan. As to facts, three men in Newfane sold 2,800 barrels of apples this year. One of them, from fourteen acres, sold 1,000 barrels. One in Wilson, from one acre, sold 151 barrels. Another, Mr. Somersett, from four acres had 600 barrels. One in Porter had, from four acres, 500 barrels; and from one tree he gathered 26 barrels. Last year, one man in Newfane received $1,300 net from peaches grown on three acres. One school district, district No. 1, Newfane, received over $40,000 for fruit. One man in Lockport last year was offered $1,500 for the pears grown on one acre. He sent them to New York, and they were over-kept, and he only realized $1,000 for them. The sales of apples this year, as taken from the books of the various buyers in this county, foot up 200,000 barrels, at an average price of $2 60 per barrel, making, probably, the most money ever received for any one crop of any kind ever gathered in this county."

NEW JERSEY.

1. This State shows a large general advance in the price of farm lands, and adjacent to the great cities the percentage of increase is very high, consequent upon the division of farms into truck patches and fruit gardens for the supply of the ever-increasing demands of the city markets. The extension of railway facilities into sections heretofore remote from markets has brought many thousands of acres under improved cultivation, and much enhanced the value of the lands thus brought into communication with the cities drawing supplies from either end of the State. In Essex county the average increase is reported as 50 per cent., though in particular localities it reaches 300 per cent.; Hudson, 30 per cent. in the northwestern portion, and 50 in the eastern and southern parts, many farms having been cut up into villa sites, selling at from $1,000 to $3,000 per acre; Passaic, 25 per cent. advance; Union, 50 per cent., and near the railroads,

100 per cent. ; Hunterdon reports little general increase over 1860 ; Warren, 40 per cent. ; Ocean, 50 per cent., cranberry lands running to much higher figures ; Monmouth, 25 per cent. ; Burlington, 20 to 25 per cent., much more in some localities ; Gloucester, 20 per cent. in the best lands, and 30 to 40 per cent. in new lands recently cleared and opened up by railroad improvements ; Camden and Cape May about ten per cent. general increase ; Salem, 15 to 20 per cent.; in Cumberland and Atlantic large tracts of land, comparatively valueless in 1860, have been brought under cultivation, and much enhanced in value.

2. The value of the wild or unimproved lands of the State varies greatly, from $1 to $300, according to location, quality and resources. In several of the counties there is very little land of this character. In Essex and Hudson counties there are many thousands of acres of salt meadow and swamp lands, which, when reclaimed, must become immensely valuable for gardening purposes, from their proximity to New York and the great depth of rich alluvial matter deposited upon them. A systematic drainage of these flats is now in progress with prospect of complete success, at an estimated expense of about $10 per acre. The market price of these lands is rapidly advancing in view of this effort at reclamation. In Ocean county the average value is $15 per acre, but poor tracts may be bought at from $1 to $5 per acre ; large tracts of swampy or bog lands are adapted to the growth of cranberries, which are extensively cultivated in this county. In Monmouth, unimproved lands run from $5 to $300, the latter for very superior timber. Burlington county gives an average of $6 to $10 per acre, pine lands and white cedar swamp, light sand, and black peaty soil ; the former growing blackberries and strawberries admirably, and the latter, cranberries, which are native to the soil. In Camden and Gloucester, $15 to $20, chiefly a sandy soil, with some tracts of stronger soil, suited to trucking and to some extent the growth of grass or grain ; in Cumberland, Cape May and Atlantic, the price varies from $1 to $10, generally light, sandy soil, susceptible of improvement for growth of truck, small fruits, &c., and large settlements have sprung up within a few years and the value of the adjacent lands correspondingly increased.

3. In the northern counties valuable deposits of iron ore are found, and are in a fair state of development, with some copper and considerable building and other stone ; while in the central and southern counties immense deposits of greensand marl exist. Hickory, white oak, black oak, and chestnut timber of superior quality is found in Hunterdon and Warren counties, and valuable cedar timber still remains in the swamps of Ocean, Burlington, Gloucester, Atlantic, and Cape May. The marl beds extend across the State from Monmouth county through Ocean, Burlington, Camden, Gloucester and Salem, to the Delaware, and is being largely developed as a fertilizer, free use of which has made fertile large sections previously of little value. The raising of this marl has become an extensive business in Monmouth, Burlington and other counties, with constantly increasing demand, as the advantage of its application to the light soils of the State is no longer a question. The supply is comparatively inexhaustible. Muck also abounds in a number of counties, and is used as a fertilizer with marked benefit. The manufacture of glass has been extensively engaged in upon the pine barrens and sandy lands of South Jersey.

4. A mixed husbandry prevails in most of the counties, embracing all of the grass, cereal and root crops suited to the latitude. Market gardening and the growth of small fruits are commanding much attention in districts contiguous to or in easy communication with New York and Philadelphia, and are engaged in with assurance of ready sales and large profits. In Hudson, Essex, and Union, in East Jersey, and in portions of Burlington, Camdem, Gloucester, and other southern counties, this culture is made a specialty. In the western part of Burlington county alone, there were the past season about 1,400 acres of strawberries in bearing, 700 acres of blackberries, and 150 acres of raspberries ; while

from the swamps of Burlington and Ocean are sent to market large quantities of cranberries, upwards of 100,000 bushels in 1867. The light lands of the lower counties of the State are well adapted to the growth of berry crops. Sweet potatoes are also largely grown in the sandy soils of Burlington, Gloucester, and other counties, and return large profits to the producer. The average production of corn in 1866 was 43⅓ bushels per acre; wheat, 13½ bushels; rye, 14 bushels; oats, 34½ bushels; barley, 20 bushels; buckwheat, 18 bushels; potatoes, 77 bushels; hay, 1¼ tons.

5. Mediterranean wheat, chiefly red, is almost entirely grown, being considered less apt to be affected by the rust and insects, though samples of the early Boughton wheat have been tried with success. In the western and northern counties wheat is generally sown from the first to the third week of September, and harvested during the first and second weeks in July, while in south and west Jersey the ground is seeded a week or two later and the crop harvested a few days earlier. The mode of culture is generally the simple ploughing and harrowing, with special manuring, frequently after early potatoes, corn, oats, or vegetables. In Burlington, Warren, Union, Ocean, and Cape May, from two-thirds to three-fourths of the seed is drilled. Spring wheat is not cultivated. The average length of the pasturage season is about six months, at a cost per head varying from one to four dollars per month. In Hudson and Hunterdon it is estimated at $4 per month; in Passaic, Essex, and Burlington, $3; Union and Gloucester, $2 50; Monmouth and Warren, $2; and Cape May as low as $1 per month. White clover grows quite generally, also common or herd grass, and red clover and timothy grow well on prepared ground, the latter furnishing the chief crop of market hay.

7. Apples have ceased to be a reliable crop in New Jersey, and only in alternate seasons are orchards looked to for even a fair yield, so injurious to the fruit and trees have the insects become. Pears are more successfully cultivated. Peaches are also uncertain as a crop, but so profitable when yielding that much attention is being given to their production in the central and southern counties. Grapes are subject to mildew and rot, and are not generally successful as a crop. The blackberry, strawberry, and raspberry, grow in great perfection, and are extensively cultivated for the city markets, yielding almost fabulous profits to the cultivator. The demand for these small fruits always exceeds the supply, and the perfect adaptation of the light soil of the lower part of the State to their growth offers assurance of good returns for the industry devoted to such culture. The cranberry production is also large, and, as heretofore stated, is proving largely remunerative, and rendering valuable lands formerly apparently worthless. This crop is said to average a profit of $300 per acre, the price being from $3 to $4 per bushel, and some large growers produce from 4,000 to 5,000 bushels. The total yield of the crop for 1867 was upwards of 100,000 bushels, and will be largely increased the coming year. The unimproved swamp lands adapted to the growth of cranberries sell at from $10 to $50 per acre; cost of preparation about $240 per acre, and when in full bearing sell as high as $1,000 per acre.

Quite a large influx of population is noted in the counties offering inducements of cheap lands and railroad facilities for marketing crops, and in a few years many thousand of acres of what has been considered waste lands will be brought into profitable cultivation.

PENNSYLVANIA.

1. Estimates from but two or three counties of Pennsylvania place the average value of improved farm lands at the same figures as given in 1860, while the general average for the whole State would appear to be about 20 per cent., from 20 to 25 in the eastern half, and from 15 to 20 per cent. in the western

portion. Forest and Elk counties report no increase since the date named, while Lycoming reports as high as 100 per cent. advance; Susquehanna, Luzerne, Lancaster, Cumberland, Clearfield, Erie and Lawrence, from 40 to 50 per cent.; Wayne, Wyoming, Bradford, Tioga, Columbia, Union, Berks, Perry, York, Delaware, Franklin, Cambria, Westmoreland, Somerset, Beaver, Armstrong and Warren, from 25 to 35 per cent.; Crawford, Alleghany, Dauphin, Juniata and Bucks, from 15 to 20 per cent.; McKean, Washington and others, from 2 to 15 per cent.

2. The value of unimproved or wild lands is returned at prices ranging from $2 to $45, varying according to location and timber and mineral resources, averaging from $10 to $12 in the State. In Berks county nearly one-fourth of the surface is hilly and timbered, and is valued at $45 per acre for the timber. York county gives an average of $30; Bradford, Perry, Crawford, Erie, Lawrence, $20; Susquehanna, Wayne, Tioga, Dauphin, Clearfield, Armstrong, Greene, Elk and Warren, $10 to $15; Franklin as low as $2; Lancaster, Delaware and Montgomery, report no wild lands, but tracts of woodland, worth the value of the wood above the value of the land, $100 to $200 per acre. Much of the wild land is mountainous, and valuable only for the mineral deposits or growing timber, while portions are susceptible of the highest cultivation and improvement, or adapted to grazing and dairy purposes.

3. The mineral wealth of Pennsylvania is well known. Our returns are full of references to the rich iron ores, in many places extensively worked, of the entire length of the Susquehanna valley, of the Schuylkill and Lehigh regions, and of the western slope of the Alleghanies. The anthracite coal, of the eastern and northeastern sections of the State, is of great value; and the bituminous varieties, of the northwestern and western sections, are not excelled in yield and quality by any coal of that character in any coal lands of the United States. In Elizabeth township, Alleghany county, our correspondent estimates $365,000,000 worth of coal at four cents per bushel, and that at one cent per bushel the coal finding an outlet from the Monongahela river would suffice to pay the national debt. The following description of mining here is thus given:

"The principal vein is called the 'six foot vein,' and dips towards the south, so that at Pittsburg it is about 400 feet above low water, and at Brownsville is at the water's edge—the distance being 60 miles. The coal is taken from the miner's rooms by wagons, containing usually 25 bushels, and hauled by mules to the mouth of the pit and let down the hill by cable on a railway constructed for the purpose; the loaded wagon drawing an empty one up to the pit. A mine in good order and well worked will produce about 8,000 bushels per day. Four cents per bushel is paid for digging. Many things conspire to prevent constant and regular work, such as very low water, very high water, ice in the river, and occasionally dullness of sale at Cincinnati and other markets below. At the present time, owing to the low water, we have millions of bushels in boats awaiting the 'moving of the waters.' It is estimated that there are $3,500,000 worth. I consider that our coal trade is as yet in its infancy, and this results from the want of capital as much as from any other cause. Good coal lands vary in price from $50 to $500 per acre, owing to their situation in regard to the slack-water."

Large quantities of chrome have been mined in Delaware county. A Philadelphia company is sinking a shaft in the southeastern part of Greene county, for gold-bearing quartz. Limited quantities of lead and copper are found in Bucks. Building-stone is quarried with profit. The State is still rich in timber, in great variety, from which large revenues are derived. Williamsport, on the west branch of the Susquehanna, has a large population almost exclusively engaged in the lumber business. Lime is abundant, and is relied upon, particularly in the eastern section of the State, as a fertilizer. The soil is various in quality, and generally quite productive. The famous farms of Lancaster are not only sustained, but improved, by means of cattle-feeding and liming the soils.

4. A mixed husbandry prevails in Pennsylvania—wheat, corn, oats, hay and potatoes the leading crops. In Susquehanna, Bradford and other counties, grass is the chief crop grown, and the profits shown in the cattle, sheep, butter, and wool sent to market. Bradford promises soon to rival Orange county, New York, in the butter business. In the counties adjacent to Philadelphia market gardening, small fruits, &c., are specialties, increasing the value of the lands, and bringing in large returns to those engaged in the business. The wool crop is given prominence in Washington county, at the extreme western part of the State. Mixed husbandry appears to be most profitable through the interior and west, finding an excellent home market for the productions throughout the extensive mining and lumbering regions. As in other States the culture of sorghum has been almost entirely discontinued, though it has generally proved profitable.

5. Mediterranean wheat has been generally preferred, as being less affected by the frost, and the fly and other insects, though within a few years the Tappahannock wheat has been cultivated with success in some sections, ripening from one to two weeks earlier than other varieties, while in other localities it is pronounced a failure. Between the red and white Mediterranean wheat the former meets with most favor, as it withstands the ravages of the fly more certainly and uniformly yields better than most other varieties. In Lancaster they have an improvement upon the Mediterranean, called Lancaster wheat, which is in general use in this and adjoining counties, and valued for its early ripening qualities. Soule's and Blue Stem are preferred in Tioga; in Cambria the Blue Stem; in Warren the White Flint. Some spring wheat is grown in the northwestern counties, but it is an uncertain crop and not profitable, and its cultivation is being abandoned. Time of sowing winter wheat varies in different localities from the last week in August to the first and second week in October, but the crop is principally in by the last of September. Harvesting extends through July, but the major portion of the grain crop is cut during the second and third week. In Greene county the rotation is corn on a sod, to be followed by oats, and then wheat, the land being ploughed once for each crop. Our Westmoreland reporter says: "Much of our grain culture is conducted in a very slovenly manner; the ground is ploughed three or four inches deep, sown broadcast, then harrowed and cross-harrowed—and that is the whole of it. There is not a scarifier, a sub-soil plough or a roller on one farm in a dozen in this county, nor one farm in a hundred that is either wholly or partially under-drained. We have a great deal to learn, but seem to be a perverse set of scholars. So long as our prolific soil yields a moderate return for our labor, we seem satisfied to jog along as our fathers did before us." In Tioga they generally sow wheat after barley, though some sow on sod ground. "Breaking sward ground in fall and sowing oats in spring, once ploughing after oat harvest, top-dressing with barn-yard manure, and then sown to wheat," is coming into practice in Bradford and Columbia, and succeeds well. In Luzerne the ground is twice ploughed; summer fallowing, as formerly practiced, has been abandoned. Our Lycoming reporter says: "Our best farmers plough twice, harrow well, and, if the ground will admit, drill; but we have all kinds of bad farming, and this lowers the average yield to an annoying extent." In Lancaster county "wheat usually follows oats—the oat stubble is heavily manured, the manure ploughed under and well harrowed, then ploughed or thoroughly shovel-ploughed, rolled or dragged previous to sowing the wheat. The grain is now almost universally drilled in, and since drilling has become general *freezing out* has been rare." Throughout the State perhaps one-half the wheat is drilled; in some counties nearly the whole average is drilled, and the advantage of the system is generally recognized and is being rapidly adopted.

6. White clover, red clover, timothy, herd-grass, spear grass, and a species of blue grass—shorter than the Kentucky, but of a quality more relished by

animals—are the principal grasses, while many other grasses, native and introduced, have become common in many counties, and compose the sward, which is formed by a natural process upon soils that are left at rest for a few seasons. The length of season in which stock can feed in pastures exclusively is generally reported at from six to seven months, though two or three return as low as five and five and a half months; a large proportion, however, fix the season at six months, while the estimated cost per month ranges from $1 to $3 50, averaging about $1 50 per month. Wayne, Crawford, Somerset, and Washington estimate the cost at something less than $1, while Lycoming, Montgomery, and Bucks place it at $2 50, Delaware at $3, and Lancaster at $3 50.

7. Pennsylvania grows most of the fruits adapted to northern latitudes—apples being the staple, the cultivation of which has been increasing for several years in the western counties, and the quality of the fruit improved by careful culture. The crop of 1867 was quite poor throughout the State, but the yield of the preceding year was largely remunerative in the counties where attention is given to the fruit. Our correspondent in Alleghany county says: "In 1866 Mr. Van Kish realized about $1,200 from an orchard of about eight acres, and others did proportionately well." From Westmoreland a correspondent writes: "With so diversified a soil as ours, composed in a large degree of the debris of animal, vegetable, and mineral matter, and embracing hill and dale that lie exposed to the morning and evening sun, with many springs of the purest water, our county is capable of producing, in great perfection and profusion, all the fruits known and cultivated in the northern temperate zone. On my own farm we seldom have an entire failure of the apple, pear, or peach crop. Grapes, embracing about sixty varieties, have never entirely failed, nor have they been seriously injured by rot or mildew. This year our apples have commanded $1 25 per bushel, when the surplus crop was sold in October. Our orchards are kept in grass, which is ploughed down only once in ten or twelve years. A crop of hay, made from a mixture of orchard grass, clover, and spear grass, is taken off in June. It is pastured after the fruit is gathered. We consider the hay and pasturage equivalent to all expenses attending the fruit culture, and with a full crop of fruit we net from $1,000 to $1,200 from a twelve-acre lot." Peaches are an uncertain crop in most localities, when spared by the frosts, being subject to much injury from insects. Our York correspondent writes: "Of fruits we raise, or try to raise, apples, peaches, pears, plums, cherries, &c.; the large fruits have, of late years, failed. Of the small fruits there is a fair yield annually." In Dauphin "apples do reasonably well one year in three; peaches somewhat better; pears do still better; grapes, in proper situations, do well in favorable seasons; the Catawba ripens finely, and is regarded as the standard of tenderness for this latitude. All varieties ranking in hardiness with the Catawba, and above, will endure the winter without protection." In Berks "the insects have caused great deterioration in fruit products. Formerly apples yielded enormous crops, but since the appearance of the borer and curculio the crop has been a failure. Pears are the most reliable; grapes entirely free from rot, climate favorable; small fruits successfully cultivated." In fact, throughout the State, insects are reported as the great enemy of fruit crops. From Erie our correspondent writes: "Apples, pears, and quinces, with most of the small fruits, do well in parts of this county, while the portion bordering on the lake is unsurpassed in capability to produce these fruits, and it is generally conceded that the south shore of Lake Erie is one of the best grape-growing sections this side of California." Beaver county reports the establishment of many new vineyards, particularly along the Ohio river, and that some of the young vineyards, two or three years old, yield $500 to $600 per acre.

DELAWARE.

1. Delaware shows a marked increase in value of farm lands since 1860. Newcastle county has not been subject to any great fluctuation since that date, but the high prices of agricultural products, and the steady increase of the population of its chief city, Wilmington, now containing 25,000 inhabitants, have justified a regular advance in the price of lands within convenient distance of city markets, which is estimated at one hundred per cent. in the time named. An equal percentage of increase is also reported for Kent and Sussex. In the latter the railroad running across the western part of the county, and the Junction and Breakwater railroad, one-half of which is now completed, have added much to the price of lands adjacent, some farms having been sold at four times their market value six years ago.

2. In Newcastle county there are little or no wild or unimproved lands. In Kent the average price of such lands is given at twenty dollars per acre, the low swamp lands at ten dollars, while in Sussex the average is placed at ten dollars for wild lands. A large proportion of these lands are capable of high cultivation, and are now being rapidly improved, and when fenced and cleared of bushes and briers, by ploughing and applying fertilizers, it may be increased in value several hundred per cent. The swamps are comparatively worthless, except for firewood, unless thoroughly drained, when they may be made equal in value to the upland.

3. The soil of the State is varied, a portion being well suited to the culture of vegetables and fruits. Oak and pine timber is abundant in Sussex. Kent was at one time noted for its fine white oak and poplar timber, but the most valuable is now cut off. There is some iron ore in Sussex, and limestone is found in Kent suitable for building and fertilizing purposes. There are great inducements for the development of the agricultural resources of the State, as most of the lands are susceptible of high improvement.

4. Wheat and Indian corn are the principal crops grown. Our Kent correspondent states that much of the land in that county will produce thirty bushels of wheat and fifty bushels of corn to the acre. In New Castle a mixed husbandry prevails. "The lands are generally divided into small farms, say about one hundred acres on an average, and the fields in proportion, to answer the usual rotation of crops, which is, chiefly, corn from ploughed sod, oats, wheat, and then the artificial grasses."

5. In New Castle the old bearded Mediterranean wheat is cultivated, preferred chiefly from its supposed greater immunity from attack of the Hessian fly and less liability to rust, being ten days earlier in ripening than other varieties. The Mediterranean and German wheats are almost exclusively grown in Kent county, while in Sussex the Kentucky white, blue-stem white, red Mediterranean, and Boughton, are grown—the red Mediterranean gaining favor on account of its early ripening and freedom from rust, though the yield is not large. The seeding season runs all the way from the 1st of September to the middle of October, while the general harvest comes the first week in July; but the red Mediterranean ripens somewhat earlier. The usual mode of cultivation in Kent is to "turn fallow in August, harrow well, and drill the wheat with fertilizer, though many seed the corn ground with wheat." In Sussex the mode of culture varies, and the correspondent estimates that one-half is ploughed in, one-third drilled in, and the residue is sown and put in with a spike-harrow. In New Castle three-fourths of the crop is drilled in.

6. The natural grasses are white clover, blue grass, green grass, June grass, and crab grass; and the cultivated grasses are timothy, herd grass, and red clover, upon which cattle can feed exclusively about six months of the year, at an estimated expense of about $1 50 per month in Kent, $1 65 in Sussex, and about $3 in New Castle.

7. Of the capabilities for fruit our New Castle correspondent writes: "With proper attention the apple does as well in this county as in any of the middle States. The peach flourishes finely, and makes our State noted for its production. It is stated that 300,000 baskets of the fruit were shipped from Middletown alone during the last season, all produced in the lower sections of the county. The pear, grape, strawberries, raspberries, &c., are cultivated with ease and success." Kent county, says the correspondent, "is famous for its fine peaches, immense quantities of which are shipped to New York and Philadelphia in season. Some orchardists have as many as 15,000 trees in bearing, and one claims to have 60,000 trees. The average yield of a healthy, well-grown orchard is about two and a half baskets of five-eighths of a bushel to a tree, and fifty cents per basket in the orchard is considered a paying price." From Sussex we have: "The capabilities for fruit growing in this county are perhaps not excelled by any on the peninsula, but the culture has been neglected for want of railroad transportation. The soil and climate are highly favorable to peaches, apples, pears, and the small fruits, which pay a large profit. The peach is largely cultivated, and the crop of the past year, though the season was unfavorable, reached 700,000 baskets; and the number of trees planted the past fall and coming spring will probably swell the number to 1,000,000 baskets. The average yield is one box to each tree."

Table showing the average yield per acre and the average prices of the principal crops of the United States for 1867, *and comparative amount of winter and spring wheat, in tenths.*

STATES.	WHEAT.				RYE.		BARLEY.		OATS.	
	Average yield per acre in 1867, stated in bushels.	Average price per bushel on the 1st day of January, 1868.	How many tenths of the usual crop are winter wheat?	How many tenths of the usual crop are spring wheat?	Average yield per acre in 1867, stated in bushels.	Average price per bushel on 1st day of January, 1868.	Average yield per acre in 1867, stated in bushels.	Average price per bushel on 1st day of January, 1868.	Average yield per acre in 1867, stated in bushels.	Average price per bushel on 1st day of January, 1868.
Maine	10.6	$2 79	1	9	14.8	$1 61	18.3	$1 13	22	$0 80
New Hampshire	12.1	2 89	2	8	14.7	1 62	24.5	1 24	27.5	80
Vermont	15.8	2 76	1.5	8.5	15	1 62	23.4	1 46	30.1	77
Massachusetts	16	2 81	3	7	15.6	1 58	22.6	1 54	26.7	90
Rhode Island	.....	.....	.....	.....	15	1 65	25	1 42	27	84
Connecticut	17.5	2 63	6.7	3.3	14	1 63	23.2	1 45	27.5	85
New York	14.5	2 64	6.5	3.5	15	1 50	20	1 47	26.2	76
New Jersey	14	2 58	9.9	.1	13.7	1 63	21.5	1 27	27	73
Pennsylvania	12.5	2 43	8	2	13.7	1 41	20	1 37	30	66
Delaware	9.3	2 38	9.6	.4	7	1 50	.....	.....	16.6	73
Maryland	11	2 43	10	.....	13.4	1 45	26	1 27	23.2	68
Virginia	8	2 12	10	.....	8.5	1 14	12.3	1 05	17	48
North Carolina	6.9	2 11	9.8	.2	7.7	1 41	.....	.....	13.3	64
South Carolina	6.4	2 38	9	1	5.7	1 79	6	2 00	11.1	75
Georgia	8	2 35	9.7	.3	8.1	1 77	14.3	2 03	12.4	90
Florida	.....	.....	.....	.....	.....	.....	.....	.....	17	1 25
Alabama	7.8	2 05	9.6	.4	7.9	1 63	14.4	1 96	11.7	87
Mississippi	9.5	2 40	10	.....	11.5	1 92	8	1 50	13	1 07
Louisiana	8	2 50	10	.....	.....	.....	.....	.....	14	1 62
Texas	9.5	1 89	8	2	16.3	1 28	24.8	1 10	23.5	79
Arkansas	9.2	2 01	9.5	.5	13.2	1 31	15	2 00	16.7	83
Tennessee	8.5	2 11	9.7	.3	10.5	1 20	19.5	1 34	15.4	62
West Virginia	10.5	2 39	9	1	12.4	1 20	20.8	1 40	21.5	51
Kentucky	8.2	2 17	9.9	.1	10.7	1 38	17	1 33	18.8	57
Missouri	12.4	2 00	8	2	16.2	1 15	21.1	1 46	30	49
Illinois	11.4	1 97	4.5	5.5	15	1 19	22.3	1 28	30.1	49
Indiana	10.5	2 21	9.5	.5	14.1	1 18	21.1	1 22	10.9	49
Ohio	11.6	2 36	9	1	13.4	1 26	24	1 29	31.1	54
Michigan	12.4	2 34	8	2	17.2	1 30	20.9	1 36	29.5	68
Wisconsin	12.3	1 77	2.5	7.5	16.5	1 14	25.8	1 35	35	59
Minnesota	12.5	1 48	1	9	18.8	1 11	23.6	1 07	38	72
Iowa	12.7	1 43	.8	9.2	19.4	1 04	29	1 16	42	42
Kansas	14	1 84	6.7	3.3	20.3	1 15	26.7	1 10	36	49
Nebraska	15	1 32	1	9	25.2	1 02	27	96	39.2	59

Table showing the average yield and prices of the principal crops of the United States for 1867, *&c.*—Continued.

STATES.	CORN.		BUCKWHEAT.		POTATOES.		LEAF TOBACCO.		HAY.	
	Average yield per acre in 1867, stated in bushels.	Average price per bushel on 1st day of January, 1868.	Average yield per acre in 1867, stated in bushels.	Average price per bushel on 1st day of January, 1868.	Average yield per acre in 1867, stated in bushels.	Average price per bushel on 1st day of January, 1868.	Average yield per acre in 1867, stated in pounds.	Average price per pound on 1st day of January, 1868.	Average yield per acre in 1867, stated in tons.	Average price per ton on 1st day of January, 1868.
								Cents.		
Maine	33.4	$1 59	21.9	$0 99	86.6	$0 93	.....	.....	1	$14 62
New Hampshire	35.5	1 56	22.3	1 00	97.5	81	.....	.....	1	15 00
Vermont	36.2	1 52	25.4	97	116.9	69	.....	.....	1	15 36
Massachusetts	35.7	1 53	18	1 14	96	1 11	1,100	22	1.3	22 12
Rhode Island	25.7	1 64	.....	.....	72.5	1 16	.....	.....	1.1	26 62
Connecticut	33	1 50	13	1 17	68	1 10	1,266	23	1.3	21 60
New York	30.4	1 32	20	1 04	84	90	533	14	1.2	17 47
New Jersey	33.1	1 23	19.3	1 33	56.6	1 41	.....	.....	1.3	22 13
Pennsylvania	32	1 17	16.3	1 13	74.4	1 04	725	9	1.3	14 83
Delaware	16.3	1 02	16.6	1 22	41.6	1 00	.....	.....	1.6	17 66
Maryland	28.4	1 09	18.8	1 20	71	1 10	453	12	1.3	17 54
Virginia	20.9	85	12.3	97	67	66	690	12.5	1.2	12 48
North Carolina	11.6	1 04	17.5	89	93	62	652	17.3	1.5	12 06
South Carolina	9.6	1 15	.....	.....	89.4	76	.....	.....	1	19 50
Georgia	13.1	96	.....	.....	101	62	515	30	1.3	21 58
Florida	11.8	1 38	.....	.....	143	1 10	.....	.....	.....	.....
Alabama	16.2	79	.....	.....	72.4	59	600	34	1	20 00
Mississippi	15.7	1 09	.....	.....	85	78	.....	.....	1.3	16 43
Louisiana	15.6	1 10	.....	.....	101	1 21	.....	.....	1.5	19 75
Texas	28.2	75	.....	.....	130.3	69	500	25	1.7	16 60
Arkansas	26.5	77	.....	.....	94	1 02	714	23	1.8	20 75
Tennessee	23.7	55	15	1 58	72.4	89	620	14	1.3	18 95
West Virginia	29.7	89	14.8	1 07	69.6	81	690	17	1.4	11 44
Kentucky	24.7	65	12.8	1 28	50.7	98	552	9.7	1.3	14 80
Missouri	27.2	66	21	1 21	73.9	97	802	11.5	1.7	11 11
Illinois	23.8	68	15.2	1 10	60.5	1 20	573	8	1.5	9 73
Indiana	29.2	65	16.7	1 10	73.2	97	809	9.4	1.4	11 63
Ohio	28.7	82	13.5	1 15	75.4	1 00	667	10	1.4	12 32
Michigan	31.4	96	17.2	1 04	97.5	73	.....	.....	1.3	16 14
Wisconsin	33.6	86	15.6	1 00	96	69	.....	.....	1.6	11 11
Minnesota	30	1 07	14.4	1 25	110	92	.....	.....	1.8	7 28
Iowa	33.8	55	20.6	1 10	108.7	79	656	23	1.9	5 77
Kansas	38.6	55	19.7	1 26	109	1 02	.....	.....	1.9	5 08
Nebraska	36	74	15	3 00	95	1 33	.....	.....	1.9	5 54

Table showing the average yield and prices of the principal crops of the United States for 1867, *&c.*—Continued.

STATES.	SORGHUM MOLASSES.		WINTER WHEAT.		WINTER RYE.		WINTER BARLEY.	
	Average yield per acre in 1867, stated in gallons.	Average price per gallon on 1st day of January, 1868.	Average amount sown last fall compared with 1866.	Average condition of same on 1st day of January, 1868.	Average amount sown last fall compared with 1866.	Average condition of same on 1st day of January, 1868.	Average amount sown last fall compared with 1866.	Average condition of same on 1st day of January, 1868.
Maine	.....	.....	9.8	9.3	9.9	9.7	.....	.....
New Hampshire	.....	.....	9.6	9.6	10.2	9.7	10	10
Vermont	.....	.....	10.5	10.5	11.5	10	.....	.....
Massachusetts	.....	$1 00	10.6	10.2	10.2	10	10.5	10
Rhode Island	.....	.....	.....	.....	19.2	10	.....	.....
Connecticut	95	92	10.3	10.6	10.4	9.8	9	10
New York	90	87	11.2	9	9.6	9.7	9.6	8.7
New Jersey	98.3	77	10	10	9.9	10	.....	.....
Pennsylvania	94.3	78	10.5	9.9	10	10	10	9.3
Delaware	77.5	65	8.6	10	10	10	10	10
Maryland	105	89	10	10	9.4	10.2	.....	.....
Virginia	67.5	61	12.3	10.1	9.7	9.5	10	9.3
North Carolina	64	60	11.2	10.7	10.5	10.1	14	9
South Carolina	35	85	11.6	10.9	10.2	10.6	10	10
Georgia	66	66	11.6	10.4	10.6	10.5	9.8	10.3
Florida	.....	.....	.....	.....	6	10	.....	.....
Alabama	46	81	12.2	11.4	9.9	10	9.6	10.5
Mississippi	50	97	15	10.3	10.4	11	.....	.....
Louisiana	.....	.....	10	10	5	10	.....	.....
Texas	78.3	92	8.5	9	9.8	9	8.7	9
Arkansas	68.6	85	14.9	10.4	11.1	10.4	12	10
Tennessee	82	69	15	11	10	10	11	10
West Virginia	86	73	14.6	10.2	11.5	9.8	9 8	10
Kentucky	68.8	64	10.5	9	9.6	8.9	9.6	8.3
Missouri	86	69	14.3	9.5	10.3	9.4	8.4	9.3
Illinois	87	68	10	9.5	9.2	9.7	9.2	9.9
Indiana	88.1	67	12.1	10.3	9.9	9.8	9.6	9.7
Ohio	84.8	69	12.5	9.8	10.1	9.8	9.8	9.5
Michigan	99.4	87	13.5	9.8	9.9	10	10.6	10
Wisconsin	67.4	74	9.6	9.5	10	9.3	9.4	9.6
Minnesota	86	96	8.6	12	9.7	9	8	10
Iowa	113.4	77	9	9.1	9.8	9.2	10	10
Kansas	111	74	11.4	9.9	9.7	10	9.8	9
Nebraska	133	86	6.5	.....	9.3	8	.....	.....

PRODUCTIONS OF CALIFORNIA.

The estimates heretofore given of the agricultural products of California are actually exceeded by the exhibit of the surveyor general, from returns of the assessors. It is the first official report made, and a summary will be found interesting, as made by our correspondent, Horace D. Dunn, as follows:

For the first time in the history of California, the surveyor general has been able to make a report of its resources, which may be considered approximately correct. This result is very gratifying to our people, and reflects great credit on Surveyor General Houghton, who, in 1866, induced the legislature to enact a law making it the duty of assessors to inquire into and report statistics of the resources of their respective counties, under penalty of loss of one-fourth their salary. The only drawback is that the reports are required in November of the preceding year, making the information fully twelve months old when it is given to the public. As matter of interest to the department and the people of the Atlantic States, I herewith append an extract taken from the report, and a partial synopsis of the statistics connected therewith:

For many years the mining interest of the State largely preponderated over the agricultural, but a change is rapidly and steadily taking place. This is abundantly shown by comparing a few years of the assessors' valuations of the counties styled mining counties with those devoted almost entirely to agriculture.

Production of leading staples.—The value of the total production of a few of the leading staples of our State for the year 1866, so far as reported, may be summed up as follows:

14,080,752 bushels wheat, at $1 per bushel	$14,080,752
11,605,922 bushels barley, valued at 45 cents per bushel	4,722,615
1,864,379 bushels oats, valued at 50 cents per bushel	932,189
358,584 tons hay, valued at $8 per ton	2,868,672
4,449,835 pounds butter, valued at 30 cents per pound	1,334,950
2,110,058 pounds cheese, valued at 15 cents per pound	316,508
5,229,826 pounds wool, valued at 16 cents per pound	836,772
1,791,633 gallons wine, valued at 40 cents per gallon	716,653
1,983,068 bushels potatoes, (sweet and common,) valued at 60 cents per bushel	1,195,841
181,850 bushels peanuts, valued at $3 per bushel	545,550
242,213 bushels beans, valued at $1 50 per bushel	363,319
Total value	27,913,818

In the above estimate of value I do not think that the quantity reported by the assessors of a single product is large enough, except it may be the one article of barley. Wine, wool, hay and potatoes, I believe to be much too small; yet the total is several millions of dollars in excess of the gold product for the year 1866, which, from the most reliable information to be obtained, may be put down at $24,000,000; and it is highly gratifying to know that, as fast as the gold product of our State falls off, the agricultural products much more than make up the deficiency.

From the statistical tables of the report I glean the following items:

1866—land enclosed, 4,207,131 acres; cultivated, 1,774,327 acres.

In wheat, 690,745 acres, yielding 14,080,752 bushels, an average of 20 bushels per acre. Largest wheat-growing counties: Santa Clara, 109,000 acres, 3,506,000 bushels; Solano, 141,150 acres, 2,117,250 bushels; Yolo, 47,705 acres, 1,446,579 bushels.

In barley, 472,621 acres, 11,605,922 bushels, an average of nearly 25 bushels per acre. Largest counties: Santa Clara, 81,000 acres, 2,194,000 bushels; Monterey, 22,375 acres, 1,221,500 bushels; San Joaquin, 48,294 acres, 922,000 bushels.,

In oats, 48,583 acres, 1,864,379 bushels. Largest county, Mendocino, 10,000 acres, 200,000 bushels.

In potatoes, 18,886 acres, 1,834,603 bushels. Largest county, Sonoma, 3,300 acres, 241,192 bushels.

In hay, 295,716 acres, 358,584 tons. Largest county, Santa Clara, 16,000 acres, 30,000 tons.

In hops, 313§ acres, 200,912 pounds. Largest county, Sacramento, 36 acres, 38,300 pounds.

In tobacco, 143 acres, 63,017 pounds.

In cotton, 2 acres, 150 pounds, (San Bernardino.)

In silk cocoons, 296 pounds. Largest county, Santa Clara, 150 pounds.

Butter, 4,449,835 pounds. Largest counties, Marin, 1,337,500 pounds; Sacramento, 379,350 pounds.

Cheese, 2,110,058 pounds. Largest counties: Santa Clara, 543,000 pounds; Marin, 378,600 pounds.

Wool, 5,184,826 pounds. Largest counties: Santa Barbara, 587,500 pounds; Los Angeles, 405,000 pounds.

Apple trees, 1,694,986.

Pear trees, 482,477.

Peach trees, 1,088,038.

Plum trees, 234,280.

Almond trees, 28,640.

Walnut trees, (English,) 17,271.

Olive trees, 12 881.

Lemon trees, 3,029. Largest county, Los Angeles, 1,842 trees.

Orange trees, 11,284. Largest county, Los Angeles, 8,799 trees.

Grape vines planted, 19,710,814. Largest counties: Los Angeles, 3,000,000 vines; Sonoma, 2,830,195 vines; Santa Clara, 2,000 000 vines.

Wine, 1,791,633 gallons. Largest counties: Los Angeles, 600,000 gallons; El Dorado, 235,680 gallons; Sonoma, 199,030 gallons.

Brandy, 127,140 gallons. Largest counties: Los Angeles, 70,000 gallons; Sonoma, 6,838 gallons; Sacramento, 5,714 gallons.

General statistics.—Horses, 109,907. Largest counties; Los Angeles, 10,901; Sacramento, 8,873; San Joaquin, 8,836.

Mules, 21,310. Largest counties: Shasta, 1,942; Yolo, 1,976; Sacramento, 1,828.

Cattle, 436,363, as follows: Cows, 150,198; calves, 78,305; beef cattle, 188,352; oxen, 14,150.

Sheep, 1,346,749. Largest counties: Los Angeles, 135,000; Santa Barbara, 104,358; Colusa, 101,228.

Cashmere and Angora goats, 2,753.

Hogs, 332,049.

Hives bees, 27,204.

Grist mills, steam power, 74, with 187 run stone; water power, 65 mills, with 112 run stone. Flour made, 1,655,327 barrels.

Saw mills, steam, 180; water, 160; sawing 188,938,643 feet lumber.

Woollen mills, 2, using 3,500,000 pounds wool.

Cotton mills, 2, using 110,000 pounds cotton.

Railroads, —, with 362⅝ miles rails laid.

Coal mines, 63,350 tons; all in Contra Costa county.

Total assessed value of property in the State for 1866, $197,789,107, as follows: Real estate, $93,379,737; improvements, $15,306,817; personal property, $88,239,582.

Total population, (estimated,) 470,597; registered votes, 119,481; poll tax collected, $288,494.

The report also gives the following figures relative to 1867, the present year: Land cultivated, 1,793,286 acres; of which 846,377 acres were in wheat, and 354,873 acres in barley. The largest wheat counties were: Solano, 160,000 acres; Santa Clara, 150,000; and San Joaquin, 91,790 acres. The largest barley counties were: Santa Clara, 40,000 acres; San Joaquin, 30,616 acres; and Sacramento, 30,000 acres. It will be seen from the foregoing that only 18,959 acres of additional land has been cultivated in 1867. The total of wheat and barley in 1866 were 1,163,366 acres, while in the present year there were 1,201,250 acres, showing an increase of 37,884 acres cultivated in those grains. The greatest disparity between the two years is in the different apportionment, viz: in 1866 there were 690,745 acres wheat, while in 1867 there were 846,377 or 155,632 acres, or over one-fifth more land. In barley, in 1866, there were 472,621, and in the present year 354,873 acres; a decrease of 117,748 acres, or fully one-fourth less.

No statistical information of the crops of 1867 (the present year) have as yet been received by the surveyor general from county assessors, so that no estimates made can be safely relied on. As the crop of wheat in 1867 was harvested from fully one-fifth more land, it is probable that as much was produced as in the preceding year, although the grain was somewhat less in weight per bushel than in other harvests. The demand for wheat has been great, at very remunerative prices, and supplies have been brought forward more freely than in previous years. The total receipts of the harvest of 1867, at this port, from July 1 to December 23, amount to 4,265,008 sacks, or 7,108,346 bushels, of which 3,157,083 sacks, or 5,261,805 bushels, have been exported up to December 25, 1867. Large as our exports of wheat have been, it is highly probable that they will be much increased next year. Our farmers have learned by experience that summer fallowing and dry ploughing insure good crops, even in dry seasons, and the practice has been largely indulged in this year. The high price of wheat has also stimulated capitalists to engage in its culture, and many thousands of acres of land are being broken up for the first time, and will be put in that grain. In fact the desire to plant wheat seems to have become a mania, and land has been rented at higher rates than was ever known before. What the aggregate of new land planted in wheat will be I have no means of knowing further than the practice is general in all the valley counties in the State. In one county, (Contra Costa,) I am credibly informed that two tracts of land, of 5,000 acres each, have been rented, and will be sown in grain for the first

ime; and many farmers are sowing all their land in wheat, with exception of small plats hat they require in other grains, for their own use.

So far the winter has been most favorable for planting, and I believe that at the present time as many acres are already in wheat as produced the entire crop of 1867. I judge that there will be fully 150,000 acres of new land put in wheat before the season passes; and, unless very adverse weather prevails, the crop of wheat in California, in 1868, will be fully 30,000,000 bushels, which will make her the first wheat-producing State of the Union.

This will, doubtless, seem strange to the people of the Atlantic States, who have looked upon California as most valuable for her mineral wealth; but I predict that in less than a decade she will, in agricultural wealth, be the richest State, for her products are more varied and valuable than can be found in any similar area of land in the Union.

The great want of California, at present, is population, for there is room, and profitable employment, for 100,000 additional workers, within the coming year.

Give the necessary population, and California will astonish the world with the variety, quantity, and value of her agricultural products.

As you will see by reference to the statistics, in the first portion of this letter, we are making great progress in the production of hops, silk, butter, cheese, wool, wine, and brandy, while the cultivation of semi-tropical fruits, olives, and nuts, is attracting considerable attention.

From extensive personal observation derived the past year, I am inclined to agree with the opinion of the surveyor general, that scarcely a single product he has named in the list is reported in sufficient quantity. The number of vines, and the amount of wine made, I feel certain are largely understated. As an illustration, Sonoma county is put down as having only 2,830,195 vines, and made 199,030 gallons wine. I happened to be in Sonoma valley last October, when the township assessor had just completed his assessment of vineyards, and heard him state that he only assessed vineyards as having 600 vines per acre, and did not count the cuttings of 1866 at all. I visited most of the vineyards in the valley, and found that there were from 660 to 1,400 vines planted to the acre, or, on an average, fully 900 vines—just one-half larger quantity than had been assessed. I had occasion, a short time since, to make inquiry regarding the wine crop of Sonoma valley, for 1866, of Arpad Haraszthy, formerly of that place, but now of San Francisco. Mr. Haraszthy made a memoranda of the vintages of the principal wine-growers in the township, which footed up 360,000 gallons, for 1866, and calculated there must have been considerable more made in small lots, which he could not remember. Sonoma township makes from two-thirds to three-fourths of the wine produced in the county, which would make the latter about 500,000 gallons, instead of 199,030 gallons, reported.

Of the other crops of 1867, the following quantities have been received in San Francisco up to date, (December 26,) viz:

Barley, 379,123 sacks, 100 pounds each; oats, 182,356 sacks, 100 pounds each: and 350,781 sacks potatoes, the sacks averaging 140 pounds each.

With exception of potatoes, all the above are consumed in this city, or exported, the other portions of the State producing their own supplies, besides shipping largely to other points, by land, in Nevada and adjoining Territories.

The above is but a slight sketch of the productions of California, of which her people feel justly proud. The total population of the State, in 1866, was estimated at 470,597. Of these, fully 130,000 were in this city, 12,000 in Sacramento, 5,000 in Marysville, 6,000 in Stockton, 3,000 each in San José, Santa Clara, Nevada City, Grass Valley, and Placerville; making a total of 168,000 people in nine towns. The other interior towns, villages, mining camps, the inland and coast navigation, and railroads in course of construction, will absorb fully 100,000 more; leaving an agricultural population (counting men, women, and children) of about 200,000, who have produced the amount of articles derived from the soil as before stated. If any similar number of farming population in any other State of the Union have or can make as good a showing as the result of their industry, the people of California would like to know it, when they will try again.

From the San Francisco Commercial Herald and Market Review we extract some valuable and interesting statistics of the crops of California for the past year as compared with the preceding year. The total receipts and exports of wheat, flour, oats, and barley of San Francisco for the year ending December 31, 1867, foot up as follows:

		Receipts.	Exports.
Wheat	sacks	6,003,676	4,659,285
Flour	barrels	470,388	519,309
Oats	sacks	261,363	10,782
Barley	sacks	725,783	68,232

The following table exhibits the receipts and exports of flour and wheat since July 1, 1856:

	RECEIPTS.		EXPORTS.	
	Flour.	Wheat.	Flour.	Wheat.
	Qr. sacks.	*Sacks.*	*Barrels.*	*Sacks.*
July 1, 1856, to July 1, 1857	152,509	340,030	36,541	22,257
July 1, 1857, to July 1, 1858	141,825	243,052	5,387	3,801
July 1, 1858, to July 1, 1859	274,216	433,002	20,577	123
July 1, 1859, to July 1, 1860	365,628	985,026	58,926	381,766
July 1, 1860, to July 1, 1861	455,115	2,160,723	197,181	1,529,924
July 1, 1861, to July 1, 1862	426,260	1,361,218	101,652	851,844
July 1, 1862, to July 1, 1863	638,352	1,864,652	144,883	1,043,652
July 1, 1863, to July 1, 1864	402,408	1,846,118	152,633	1,071,292
July 1, 1864, to July 1, 1865	538,941	527,881	91,479	25,360
July 1, 1865, to July 1, 1866	716,053	2,198,158	279,554	1,039,518
July 1, 1866, to July 1, 1867	1,192,275	5,079,791	465,337	3,636,194
July 1, 1867, to December 31, 1867	779,444	3,926,314	198,183	2,644,019

Of the 2.644,019 sacks of wheat exported during the six months ending December 31, 1867, 2,333,342 sacks went to Great Britain, and 239,106 sacks to New York; and of the 198,183 barrels of flour exported, 43,947 barrels were sent to Great Britain, and 57,770 came to New York.

The close of the year 1867 found the market for all grades of wool at a lower point and with less movement than at any time since 1861. The receipts for the year were as follows: Spring clip, 6,206,930 pounds; fall clip, 2,421,356 pounds; from Oregon and elsewhere, 859,400 pounds; pulled wool, 1,000,000 pounds. Total, 10,487,686 pounds, against 9,487,686 in the preceding year. Exports in same period, 7,221,327 pounds. An increase of twenty-five per cent. is anticipated in the California clip of 1868.

It is estimated that there are now 1,000 dairies in California, with a product of about 5,000,000 pounds butter and 2,500,000 pounds cheese in 1867. Marin county is the chief butter-producing county of the State, there being no less than 3,500 cows, divided into 17 dairies, grazed on a single ranch consisting of 75,000 acres. There are 100 dairies in the county, and the average yield is one pound of butter daily or 200 pounds for the season for each animal. The increased production of butter and cheese greatly reduced the importations for 1867, the imports of butter being little more than half the amount of preceding year.

The following table gives the destination and value of all merchandise and produce exported in 1867, in comparison with 1865 and 1866:

To—	1865.	1866.	1867.
New York, &c	$6,270,412	$5,744,384	$6,760,378
Great Britain	1,175,658	2,609,262	8,318,642
Mexico	2,082,704	1,703,201	1,992,862
South America	541,538	381,132	770,509
Hawaiians islands	748,142	894,891	665,366
China	1,233,732	1,518,178	1,325,336
British Columbia	1,257,029	1,073,347	978,993
Japan	122,061	123,702	811,063
Australia, &c	546,808	2,666,455	62,999
Other countries	575,322	588,466	779,755
Total	14,554,406	17,303,018	22,465,903

The exports of treasure for the same period foot up as follows:

To New York	$23,355,903 45
To England	5,841,183 99
To France	1,283,235 73
To China	9,031,504 35
To Japan	641,949 52
To Panama	372,551 70
To Central America	171,980 00
To Hawaiian islands	57,032 45
To Mexico	42,000 00
To Valparaiso	723,450 97
To Tahiti	500 00
To Victoria	155,000 00
Total in 1867	41,676,722 16
Total in 1866	44,364,393 05
Decrease in 1867	2,688,100 89

The combined exports of treasure and merchandise during 1867, as compared with 1865 and 1866, were as follows:

	1865.	1866.	1867.
Treasure	$45,308,228	$44,364,394	$41,676,292
Merchandise	14,355,399	17,303,018	22,465,903
Total	59,663,627	61,667,412	64,142,195

To the above amount of treasure should be added about $6,000,000 shipped east by the United States sub-treasurer, making the total $47,676,292, and the aggregate of treasure and merchandise $70,142,195.

GREENSAND MARL AS A MANURE—(Continued.)

The marls of the State of Maryland, for the purposes of examination into their composition or value, may be conveniently classed as follows:

1. Containing shells or carbonate of lime in considerable amount.
2. Containing a preponderance of the true greensand element—glauconite.

That is, these marls may be valuable either as containing potash, in the glauconite constituent, or carbonate of lime derived from the presence of the fossil shells. Those varieties which contain the glauconite are the most valuable, and the nearer the approach of those to the standard of the New Jersey marls, as given in the last communication, the more desirable are they as manures, since potash is more desirable as a manure element than lime, because more costly when purchased by the farmer, and not usually found in any amount in mineral substances used as manure, while, on the other hand, lime carbonate can be derived from many sources and at comparatively cheap rates. The greensand particles being much heavier than the calciums or other constituents of the marl, are easily separated by washing, when the relative amounts of them may be

determined. Thus, a specimen of marl from near Marlborough, Maryland, furnished by washing—

Dark greensand grains	45.79
Shelly particles and clay	54.21
	100.00

Now many agriculturists would consider this marl rich in possessing the lime element so abundant, whereas its real value is in the amount of greensand, which, in the proportion above, would yield between five and six per cent. of potash, estimated in an uncombined form; five per cent. of this form of potash would represent eight and one-third per cent. of pure carbonate potash, so that the above amount of greensand grains would yield in 45.7 pounds about five pounds of pure carbonate, or just 100 pounds of the same pure salt to the ton of marl as now constituted. As the shelly particles were found to yield forty-five per cent. of carbonate of lime, each ton would yield nearly 900 pounds of mild lime. The analysis would thus show that the valuable ingredients in one ton of this marl are 100 pounds of pure carbonate potash and 900 pounds of carbonate of lime.

In a ton of farm manure (cow) there are obtainable not quite three pounds of carbonate of potash, so that the amount of alkali afforded by this marl is greatly superior to that given by cow manure; and as an average crop of potatoes raised on one acre removes from the soil about 102 pounds of carbonate of potash, there is in one ton of this marl nearly a sufficient amount of that salt to replace what the potato removed, supposing the manure to be evenly spread over the whole surface of the ground.

In the lower counties of Maryland the marl beds extend and cross the Potomac into Virginia, near Aquia creek, along which into the interior it may be traced in Stafford county. The following is the constitution of a marl from the Maryland side of the river at that point. By elutriation, or washing, in 100 parts of dry matter:

Fine yellow clay	48.00
Calcareous matter, (shells)	18.00
Sand	10.00
Greensand marl, impure	24.00
	100.00

And by chemical analysis it yielded in 100 parts:

Quartz and fine sand	58.5
Alumina and peroxide of iron	9.2
Carbonate of lime	17.2
Carbonate of magnesia, traces.	
Soluble saline matter containing $\frac{3}{4}$ of one per cent. of potash	0.3
Moisture and loss	11.8
	100.0

The proportion of potash in one ton of this marl is about twenty pounds of pure carbonate, corresponding to about twelve per cent. of pure glauconite in the marl. The carbonate of lime being seventeen per cent., the total quantity per ton of these two elements would be 20 pounds of pure carbonate of potash and 170 pounds of carbonate of lime. This marl, therefore, has one-fifth the money value of the one from near Marlborough.

T. A.

THE POTATO BUG.

We have received from Mr. J. S. Little, Rei, Ripley county, Indiana, the following communication in regard to remedies for the potato bug, (*Lytta*,) which are worthy of trial:

Take sawdust and coal oil, (that used for burning,) about one bushel of the former to half a gallon of the latter; mix well together and sow broadcast, commencing on one side of the field, and as the ground is gradually covered the bugs will be driven out. The operation should be repeated as often as the insects make their appearance. This was tried with other remedies in 1866.

Make a weak brine of common Kanawha salt, one and a half pounds to two and a half gallons of water, to be sprinkled over the vines after sunset, that they may have the night to take up the salt. If the brine is too strong it will cause the tops to wilt. Three applications will prove it a sure remedy. This was tried in 1867, alone, and proved effectual.

[NOTE.—The above remedies may be very good, but great care should be taken in the use of salt, as the remedy might be worse than the disease.]

T. G.

COMPARISON OF IMPORTS OF DRY GOODS.

The following is an unofficial statement of the imports of dry goods into New York in three successive Januarys:

	1866.	1867.	1868.
ENTERED FOR CONSUMPTION.			
Manufactures of wool	$3,740,464	$1,680,183	$573,838
Manufactures of cotton	2,181,451	1,625,857	645,633
Manufactures of silk	2,177,813	943,349	1,011,850
Manufactures of flax	1,798,390	954,847	496,704
Miscellaneous dry goods	839,912	632,234	432,027
Total entered for consumption	10,738,030	5,836,470	3,160,052
ENTERED FOR WAREHOUSING.			
Manufactures of wool	$2,313,860	$2,182,140	$742,515
Manufactures of cotton	1,108,648	1,720,379	474,220
Manufactures of silk	827,835	988,480	285,623
Manufactures of flax	648,349	917,864	321,216
Miscellaneous dry goods	132,369	283,539	135,733
Total entered for warehousing	5,031,061	6,092,402	1,959,307
Total entered at the port	15,769,091	11,928,872	5,119,359
Total withdrawn from warehouse	$3,775,612	$3,060,973	$1,604,974
Add entered for consumption	10,738,030	5,836,470	3,160,052
Total thrown on the market	14,513,642	8,897,443	4,765,026

The falling off in imports of manufactures of woollens is significant and gratifying. The total amount thrown upon the market in January was but

$1,059,489, against $2,970,028 in January of 1867, and $5,153,967 in January of 1866.

In seven months past there has been a decrease of $9,000,000 in value of these imports as compared with the same period of the previous year, and $14,000,000 as compared with a similar period of the previous year.

It is to be hoped that this diminution will be continued.

EXTRACTS FROM CORRESPONDENCE.

Shepherdstown, Jefferson county, West Virginia.—The following is a summary of the agricultural products of this county for the past year, as furnished by our correspondent, Dr. H. C. Evans:

Products.	Bushels.	No. of acres.	Average yield.	Price Jan. 1, '68.	Total value.
Indian corn	465,990	15,533	27.5	$0 90	$419,391 00
Wheat	236,716	20,584	11.5	2 37	551,016 92
Rye	10,430	1,043	10	1 45	15,123 50
Oats	37,365	1,366	27.5	0 55	20,660 75
Buckwheat	600	50	12	1 30	780 00
Potatoes (Irish)	17,100	190	90	0 90	15,390 00
Potatoes (sweet)	10	.2	50	1 50	15 00
Turnips	2,000	10	200	0 50	1,000 00
Beans	75	5	15	2 50	187 50
Sorghum (gallons)	3,552	74	48	0 80	2,841 60
Wine (gallons)	350	3.5	100	2 50	875 00
Leaf tobacco (pounds)	1,250	5	250	0 12	150 00
Hay (tons)	6,708	5,215	1.29	16 00	107,380 00
Total		44,078.7			1,134,811 27

Quite an encouraging exhibit for an indifferent season.

THE LUMBER TRADE.

Bay county, Michigan.—The following figures show the extent of the lumber business in this county during the year 1867, being the aggregate returns from twenty-three business firms: Lumber, 160,077,253 feet; lath, 21,622,775; logs, 159,608; total value, $2,639,627; number of men employed, 703; value of mills, $1,207,000; lumber, &c., on hand, 26,805,000 feet. Mills generally begin about May 1, and shut down November 15.

AGRICULTURE IN THE SOUTH.

Macon, Georgia, January 2, 1868.—I have been pretty well over the Atlantic States. In North Carolina the crops of cotton and corn were light, and there will be much suffering in the spring among the laboring population, from the fact that the planters will be unable, from their own impoverished condition, to supply food or labor. In South Carolina the crops were generally better, but still there will be a deficiency in food and means to employ labor another year. In Georgia and Alabama, both cotton and corn have done well, except in particular localities, and sufficient breadstuffs have been made to support the hands while planting and cultivating a larger surface to both cotton and corn the coming season. Contracts are now being made for the year, and there is not only an abundance but a surplus, and wages are low—not lower, however, than future prospects necessitate. Prime hands get six dollars per month

and rations. Many plantations are being worked on shares—one-half or one-third, as the parties find their own provisions. There is a marked improvement in the condition of the negro, and when the political troubles are settled it will be still more preceptible. As an agricultural people the South has made progress the past year slowly, but still they are in a better condition, from the fact that they have a greater amount of provisions, and are gradually becoming more self-sustaining. They are beginning to understand that their true prosperity is in making cotton a secondary crop. Could they be relieved of their terrible load of debt the country would soon be more prosperous than ever, for I do not know of any section of the Union that would so soon recuperate its wasted energies. Planters are already preparing for spring planting, and in less than two weeks plans will be in motion for the corn crop. L. C. P.

Lauderdale county, Mississippi.—I cultivated ten acres of sorghum last year. The yield was satisfactory considering the labor expended, and it is believed that the crop will pay, the season giving ample time to ripen, and the plant growing luxuriantly. I am making arrangements to plant forty acres the ensuing season, and several of my neighbors will grow small patches.

Pike county, Mississippi.—From the difficulty of controlling labor there will be less cotton planted this year than heretofore. A general determination prevails to raise everything needed for home consumption. The cotton cultivated will be more from the force of habit than with the expectation of profit, for even with hands at fifty dollars a year and board cotton cannot be raised at present prices, burdened with the government tax. Should the present year be tolerably propitious the South will be hereafter self-sustaining.

Giles county, Tennessee.—For the past four years cotton has been a specialty in this county. Last year the crop was a failure, or nearly so. This year we have made a fine crop, but the prices are a failure. It costs from fourteen to fifteen cents per pound to grow cotton here, and it is now netting but seven cents per pound. * * As a consequence, there has been a larger amount of wheat sown than I have ever known before. It has been mostly sown in cotton land, and is now looking remarkably well, and at present prices will be very remunerative. I have never known a year when there was a better crop of everything than was made the past season in this county, and had cotton netted us twenty cents per pound we would have been in a prosperous condition. As it is, we are dependent, money scarce, and no demand for our surplus mules and pork. I fear there will be a good deal of suffering among the freedmen. There will not be one-fourth the acreage of cotton planted this year as last season; hence many laborers are out of homes and are not disposed to work for wages. Anticipating fair prices for their cotton, our planters run in debt for dressing, and nine-tenths of those in this county are unable to pay their debts. There is a general disposition among our farmers to raise more of the small grains, grasses, &c., and the large land-owners are wanting to sell and reduce their farms to two or three hundred acres. Lands in this county are very rich, water and timber in great abundance, the finest facilities for manufacturing, and as fine a climate as in the United States. We need manufacturing establishments, cotton and woolen, labor-saving machinery, and steady, reliable, and intelligent laborers, and only grow cotton as a surplus.

Orangeburg county, South Carolina.—There has been much wheat sown, and it is looking well. The great depreciation of cotton prices will largely augment the cultivation of grain crops this year. I do not think there will be more than half as much in cotton as last season. Provisions are more abundant than last year, but still there is too great a disposition to shun agriculture or to carelessly prosecute it. It is much to be regretted that our people are so little disposed to give attention to the culture of rice, a very remunerative employment at present prices. There might be a great deal raised if attention were given to it. Our people are entirely too careless about agricultural improvement.

FATALITY AMONG SHEEP.

Corpus Christi, Texas.—"During the past season, in many localities, through the months of August, September, and October," writes F. W. Shaeffer, "the sucking lambs have died in great numbers. Upon a post mortem examination, I found in the *abomasum*, or fourth stomach, a small fine red worm, about one inch in length, appearing to the naked eye sharp-pointed at both ends. Upon opening the stomach, I usually found them rolled up in the shape of a ball. The lungs of the lambs were diseased, the intestines watery, and without any fat upon the kidneys. The first evidence of their being affected is their lagging behind, generally commencing in the latter part of July. The skin loses color, the eyes become bloodless, and the lambs pine away from day to day, losing strength, until, in the course of a month or six weeks, they die. In many instances the entire crop of lambs have died out. Should any of those attacked by the worms be living when the northers commence, being poor and thin, they are killed off by the cold winds. The worms are found only in the lambs while sucking, or living upon milk, or shortly after being weaned. Generally all in the flock are affected more or less before it is known, too late to save them. The cause of their origin we have not yet been able to find out, although it is attributed by some to the lambs feeding upon the red sedge grass while it is young, tender, and watery. Upon mesquit grass ranges it has not yet made its appearance. Any information the department can give us through its numerous correspondents would be of great public benefit, not only to this county, but to a large portion of western Texas."

THE TAPPAHANNOCK WHEAT.

San Bernardino, California.—"The Tappahannock wheat received last fall has proved a complete success, the return being one hundred fold, and the quality raised superior to the seed sent. In this climate the variety is distinguished from all others by its dark-green color before it commences to ripen; soil, a coarse, sandy loam; no manure applied; potatoes raised on the ground the preceding year. Fig-trees and grape-vines were growing within twenty feet. I esteem it a valuable acquisition, and if I am fortunate this year, shall be able to dispose of at least seventy bushels among my neighbors."

THE LIVERPOOL WOOL TRADE.

The general and unprecedented depression of business which has prevailed throughout the year, with hardly any intermission, has been shared to a material extent by the English wool trade, none of the hopeful anticipations that were indulged in at the commencement of the year having been fulfilled. Although the British imports, and more especially the exports, of wool, as well as of woollen manufactures, show some increase of business over that of the year 1866, the home trade has been in the most languid state known for a long time. The tendency of prices of the raw material has been downwards from the beginning of the year, and at the close their range was lower than for many years. As an evidence of the advantage to American wool-growers of the increased tariff upon wools and woollens, we may state that the depression in the English trade is in a large measure attributed to "the high, indeed almost prohibitory, duties on manufactures and the raw material imposed by the present American tariff."

Taking the returns of the Liverpool Board of Trade, we find that the imports of wool during the eleven months ending November 30 are in the aggregate

about 4,000,000 pounds in excess of those of same period in 1866. The increase, however, is considerably larger if Australian and Cape wools alone are taken; but this is counterbalanced to some extent by a falling off in East Indian and wools from European ports. The total for eleven months amounts to 213,385,609.

The exports have been much larger than in the previous year, especially as regards colonial wools, of which to Belgium alone nearly 8,500,000 pounds, and to France, Germany, and other countries, about 11,000,000 pounds more than in 1866, have been sent. In foreign there is also an increase of about 3,500,000 pounds, while the only decrease is in domestic wools to France, which has taken 2,000,000 pounds less than in the preceding year. The total export of wool shows an increase of upwards of 22,000,000 pounds over 1866. Total exports of wool, 90,262,097.

With regard to the quantity of wool left for home consumption, it appears that, deducting the increase of 4,000,000 pounds in the imports from the 22,000,000 pounds of exports, there are 18,000,000 pounds less than in the previous year; and assuming that the domestic clip (estimated at 152,000,000 pounds) has undergone no material alteration, this would in some measure account for the fact that, notwithstanding the limited demand experienced for nearly eighteen months, stock, with perhaps one or two exceptions, have accumulated to much less extent than might be supposed.

Although the exports of woollen yarns and manufactures show considerable increase, a declared value exhibits a decline, the figures standing $120,253,210 for the first eleven months of 1867, against $120,531,835 for corresponding period of 1866, the falling off being consequent upon the depreciation of prices.

Australian and Cape of Good Hope wools have, as stated, arrived in greatly increased quantities, and have been brought forward in London at the quarterly public sales, (including withdrawals of former sales,) viz., 547,119 bales, including 130,963 bales Capes. About 240,000 bales were taken for export, chiefly to France and Belgium; prices have ruled lower at each succeeding series, but the decline has been most severely felt on faulty and inferior descriptions.

From Spain and Portugal, as in former years, only greasy and black wools were received, for which the demand has not been very active.

The imports of River Plate wools are somewhat less than in 1866, but equal to those of the three preceding years. Fine-washed, as well as greasy River Plate wools, are gaining favor more and more with British manufacturers, and the demand has been fair throughout the year.

The arrivals of alpaca have been less than in the previous year, and the principal sales were made in June, at other times the demand having been languid; and prices have suffered a great reduction since the 1st of January, 1867, when the highest quotation was 84 cts. per pound, while recent sales have been made at 52 cts. per pound. Sheep's wool from the west coast of South America arrived in increased quantities, and the stocks on hand have considerably increased, while prices have suffered a serious decline. Lima and Chili have been in fair request, and the reduction in value less marked.

A material falling off in the receipt of East India and Persian. The amounts offered at the quarterly sales of the year (including parcels withdrawn from former sales) reached only 68,893 bales, against 79,414 in 1866. These wools have participated in the general decline. Persian wools have been chiefly of the bastard kind, but little true-bred wool having come forward during the year, and even the former has been of low character. The quantity of unwashed East India has considerably declined.

Donskoi (Russia) wools have until recently maintained higher prices than they otherwise would by reason of the demand for shipment to this country, but late sales in London show a serious decline.

Egyptian and other Mediterranean wools have shared in the general reduction of value, though the demand appears to have equalled the supply.

The demand for Barbary wool has been dull and sluggish throughout the year, and prices have suffered accordingly.

The imports from Iceland show a decrease from the preceding year, but the stock left on hand at the beginning of the year supplied the demand until the new clip came in, and when the fresh imports arrived they shared the general decline.

Mohair has fallen materially in price, and has at no time within the past twelve months commanded much attention in the English market. Although the imports have been less than in 1866, stocks now amount to 4,500 bags, while its value has gradually receded from 92 cents this time last year to 60 cents per pound, its present quotation.

In domestic wools, instead of the improvement anticipated in the beginning of the year, prices continued to decline, until at clip time they had receded about fifteen per cent., and since then a still further decline of about fifteen per cent. has taken place, so that prices are now lower than at any time since 1856.

The imports of sheepskins from the River Plate district reach 8,783 bales. They have been in request, and fully maintained their value in proportion to that of wool.

LINSEED, LINSEED CAKE, ETC.

The following figures give the aggregate imports of linseed into Great Britain for the years named, indicating the immense manufacture and consumption of linseed cake and oil in the United Kingdom. The quantity for each year is given in quarters of eight bushels:

	Quarters.		Quarters.
1856	1,180,179	1862	1,088,472
1857	1,051,113	1863	1,104,578
1858	1,017,844	1864	1,434,973
1859	1,270,911	1865	1,435,414
1860	1,330,623	1866	1,158,736
1861	1,160,970	1867	1,100,000

The demand for seed throughout the past year has remained in excess of the supply. For next season large additional supplies are everywhere reported. The imports for the working season—from July 1 to June 30, 1867–'68—will probably be, in round numbers, 1,200,000 quarters. The aggregate import into the United Kingdom is made up of about 275,000 quarters from Calcutta and Bombay; 330,000 quarters from Petersburg; 31,000 quarters from Archangel; 52,000 quarters from Riga; 55,000 quarters from Memel, Dantzic, and other lower Baltic ports; 317,000 quarters from the Black sea; the remainder from the Mediterranean and sundries. The re-export is very little in excess of last year, and amounts to about 20,000 quarters.

The export demand for linseed oil has fallen off during the year, but has been counterbalanced by the increased home consumption. The aggregate exports for the past six years are as follows:

	Tons.		Tons.
1862	26,000	1865	37,000
1863	20,000	1866	25,000
1864	28,000	1867	20,000

The consumption of home-made linseed cake has been on the same extensive scale as in 1866, and the high prices of other feeding stuffs has caused a good trade in cake. The import of foreign cake of all descriptions nearly equals that of 1866, being 120,000 tons.

Rape-seed were in very large supply from the East Indies, and prices have been low throughout the year. Rape cake has been in large demand. The import of cotton seed amounted to about 93,000 tons, being about the same as in 1866.

MANURES IN GREAT BRITAIN.

The aggregate imports of bones into Great Britain for the year 1867 were about 7,000 tons against 7,400 tons in 1866. The imports from South America have fallen off, while those from other parts have increased. The whole stock on hand at the end of the year did not reach 200 tons. The supply of bon ash has been fully equal to the demand, and owing to large arrivals from Rio Grande prices have not fluctuated more than $1 25 per ton. Imports of bone ash, calcined bones, and pottery ash, exceed 10,000 tons, and the stock of bone ash in first hands is about 1,200 tons.

The imports of nitrate of soda reached 27,000 tons for the year, but the quality of many of the cargoes has been inferior.

Of Peruvian guano there has been imported 14,415 tons, and 3,394 tons of Upper Peruvian.

Of brimstone 10,115 tons imported, and only about 100 tons on hand at the close of the year.

We annex the current prices of the various articles of manures, &c., named, on December 31, viz: Bones, common grinding, $27 50 to $28 12; legs, $27 50 to $30 62; shanks, $32 50 to $33 75. Bone ash, ordinary, for manufacturing, $20 62 to $22 50 per ton on 70 per cent.; calcined for pottery ware, $26 25 to $30 per ton. Animal charcoal, $21 50 to $22 50 per ton on 70 per cent. Brimstone, best thirds, $35 per ton. Nitrate of soda, $2 62 to $2 75 per cwt. Muriate of potash, $41 25 per ton on 80 per cent. Borate of lime, $4 25 to $4 50 per cwt. Sulphate of ammonia, $62 50 to $70 per ton. Gypsum, ground, free on board in British channel, $3 75 per ton; ditto, on spot, $6 25 to $7 50 per ton. Salt, common, $2 65 per ton. Linseed cake, English, $57 50 to $60 per ton; American, in bags, thin oblong, $55 to $56 25 per ton. Cotton-seed cake, undecorticated, $32 50 to 33 75 per ton; ditto, decorticated American, $45 to $46 25. Rape cake, English, $30 to 32 50 per ton. Guano, Peruvian, $61 87 to $66 25 per ton; ditto, ditto, damaged and discolored, $50 to $55; ditto, Upper Peruvian, $33 12 to $33 75; ditto, Madden Island, $17 50 to $30; ditto, Ichaboe, $45. Acid, sulphuric brown, 148 to 150 degrees, without carboys, $20 to $21 25 per ton; ditto, muriatic, ditto, $2 50 to $5 per ton.

PRICES OF FLOUR IN LONDON.

The following were the prices of flour on the first of January, in London, in shillings, four of which represent a dollar very nearly:

	s.	*d.*
Flour, per 280 pounds, town-made, delivered to the baker	58	64
Country marks	46	55
Russian	44	56
American and Canadian fancy brands, per 196 pounds	40	42
American superfine to extra superfine	35	37
American common to fine	34	35
American heated and sour	35	38

BRITISH IMPORTS OF RUSSIAN WHEAT.

The exports of Russian wheat to Great Britain were very heavy last year, having amounted to November 30th to 13,186,521 cwt. against 7,765,207 cwt. to the corresponding date of 1866, and 7,127,624 cwt. in 1865. The following figures show the total deliveries since 1852:

	Cwt.		Cwt.
1852	3,178,808	1860	5,638,298
1853	4,740,571	1861	4,512,999
1854	2,196,302	1862	5,751,018
1855	.....	1863	4,534,305
1856	4,290,989	1864	5,119,234
1857	3,060,959	1865	8,093,879
1858	2,652,940	1866	8,937,199
1859	3,836,993	1867, to November 30	13,186,521

IMPORTS OF FLOUR INTO GREAT BRITAIN.

The imports of flour into the United Kingdom in the eleven months ending November 30, shows some falling off, the receipts from abroad having been 3,040,350 cwt., against 4,403,133 cwt. in the corresponding period of 1866, and 3,136,091 cwt. in 1865. The total imports of flour in the fifteen years ending Decembeer 31, 1866, were as follows:

	Cwt.		Cwt.
1852	3,865,173	1860	5,086,220
1853	4,621,506	1861	6,152,938
1854	3,646,505	1862	7,207,113
1855	1,904,224	1863	5,218,977
1856	3,970,100	1864	4,512,391
1857	2,178,148	1865	3,904,471
1858	3,856,127	1866	4,972,280
1859	3,328,324	1867 (to November 30,)	3,040,350

The following figures show the proportion of the above imports received from France:

	Cwt.		Cwt.
1852	880,833	1860	1,751,043
1853	854,730	1861	460,775
1854	219,783	1862	790,040
1855	88,196	1863	1,367,938
1856	69,841	1864	1,813,855
1857	327,114	1865	3,044,823
1858	1,628,248	1866	3,640,320
1859	2,698,186		

CONDENSED MILK IN EUROPE.

The consumption of "condensed milk" is said to be largely increasing in England, and its manufacture is becoming quite an important interest among Swiss

dairymen. The process of manufacture differs little, if at all, from the American process, save in the use of beet sugar instead of cane sugar; Dr. Liebig recommending the former on the ground that its preservative qualities are as good and the price cheaper than cane sugar, while in saccharine properties it is stated to be equal to the other sugar. The process of the Anglo-Swiss company, as stated by Mr. Merriman, before the food committee of the Society of Arts, is simply abstracting the watery particles from the milk and the addition of the sugar. It is claimed that the milk thus prepared, after it has been open six months, is in no way spoiled, though dried to a great extent, and that the milk so prepared will bear the ordinary changes of temperature without injury. It is sold in canisters containing the equivalent of half a gallon of good milk. Dr. Liebig estimates that the addition of five parts of water will produce a quality equal to the original Swiss milk, and the richness is varied according to the quantity of water added. For each canister the quantity of sugar is about one-third of a pound, but less is required when used for domestic purposes. A reduction of the quantity of sugar would endanger the preservation of the article when sent to a warm climate. The factory of the Anglo-Swiss company is situated on the Lake of Zug, a short distance from Zurich. The milk is brought in on men's shoulders and emptied into a large reservoir, and within one hour after, the whole quantity is put under the process of condensation. The preparation takes place so quickly after the delivery at the works that no change can take place. The Swiss authorities are very rigid in measures with regard to the audulteration of food, and especially milk, but milk is so cheap in Switzerland that there can be little advantage in adulteration. Each farmer's milk is tested, however, a sample being set aside to see if the cream rises. All that is done with the milk is to deprive it of the water. Microscopic observation shows that the substance of the milk after condensation is unchanged, and analysis of the water abstracted shows that the original properties of the milk are all retained. After the milk has been placed in the vessel it is heated by steam, and the milk is evaporated *in vacuo* at a low temperature. The whole process is completed in about two hours. As soon as the gauge indicates that the evaporation is completed, the steam is turned off, and the mass of milk is put into the canisters and sealed up, ready for use.

ROQUEFORT CHEESE.

A cheese factory at Roquefort is called a cave. It is niched high up in the head of the rocky table-land, where the sheep brouse in artificial meadows and herbs abound which are peculiarly beneficial to their milk, but where only the native flocks of the country flourish to perfection. Merino sheep from Spain have been introduced, and failed. The increased demand for cheese has tempted speculators to extend their operations, but to no purpose. About 400,000 sheep and lambs appear to be all that Roquefort and its neighborhood can sustain. They cannot be multiplied—their pastures cannot be increased. The sheep are milked twice a day. The milk is instantly carried to the dairy and strained, left for an hour under a covering of linen, then warmed nearly to a boiling point, or to a middle degree. It is next partly skimmed for butter, and so on, through many delicate processes until it comes from the mould complete. Complete, but not finished, for now the cheeses have to be turned over twice a day, dried, warmed, sprinkled with bread crumbs, which produce a moist-like growth in them, or with powdered cheese or wheat flour, and then inoculated by means of a bit of old cheese put into the new one to leaven it. After all this ceremony the Roquefort is ready for the cave, whither it is conveyed with the utmost care, not to say tenderness, registered and received, treated with a little salt, and then dis-

posed in piles of three. Aveyson and Herault, in the immediate vicinity, with natural caverns in abundance, have tried to imitate Roquefort, but the scent and flavor communicated by the Roquefort caves are inimitable. The cultivators of the district realize from this single branch of industry eight millions of pounds annually. This, briefly, is the art and mystery of Roquefort cheese.

PRUSSIAN AGRICULTURE IN 1867.

An official publication recently made enables us to give the results of the harvest in the several provinces of the kingdom of Prussia as compared with the crops of the preceding year. The system adopted by the Prussian government for the collection of these statistics is the same as followed by this department, with the exception of the use of the figures 100 instead of 10, to represent the average or preceding crop, the decimals showing the extent to which the product, as estimated, exceeds or falls short of the crop with which it is compared. The averages of the whole kingdom are as follows: Wheat, .78; rye, .74; barley, .90; oats, .98; pulse, .89; potatoes, .82; thus proving that throughout Prussia the crops of wheat and rye have only been about three-fourths of an average crop; and that while barley, pulse, and potatoes have been somewhat more productive, oats alone have nearly approached the average. The following additional averages are given: Rape seed, .70; beet root, .81; lupins, 1.04; from which it will be seen that the growth of lupins as an article for feeding cattle has been very advantageous during the past year. Returns are also given of the various kinds of straw that may be available, as follows: Wheat, .88; rye, .82; barley, .89; oats, .98; peas, .94; buckwheat, .83. These figures serve to confirm the returns made of the grain produced, for although from an excess of moisture during a part of the growing season the proportion of straw has been increased, the quantity secured is less than an average.

VARIOUS MATTERS.

The total exports of cotton up to the 1st of February are 510,000 bales to Great Britain, and 246,000 bales to the continent of Europe, against 426,000 and 69,000 bales same time last year, by which it appears that the continent has this season taken direct from our ports 177,000 bales in excess of last year.

Mr. P. T. Quinn, of New Jersey, gives the following as the amount of seven years' sales of the product of a row of thirty Duchesse d'Angouleme pears, the seven crops being the yield of eight years: The first crop, the trees eight years old, $120; second, $139 41; third, $156 17; fourth, $201 28; fifth, $267 49; sixth, $310 20; seventh, $705; total, $1,900 55. The row last year produced ninty-four bushels of marketable fruit, which sold at higher prices on account of the scarcity of peaches.

The total amount of coal mined in the United States in 1867 is estimated at 25,800,000 tons. The coal trade in Pennsylvania has not been so unprofitable since 1861 as during the past year, it being stated that there has been an average loss to the producer on the whole trade.

The total consumption of sugar is estimated at about 2,035,000 tons per annum, or fifteen pounds per head for the 312,972,000 souls from whom returns can be obtained. The United States and Great Britain are the largest consumers, using 1,420,000 tons annually, averaging about forty-one pounds to each inhabitant. The average in France, Spain, Italy, Belgium, and Switzerland is something over twelve pounds, with a total consumption of 500,000 tons. The Teu-

tons are third, consuming 230,000 tons, or an average of about seven pounds. The sources of supply are at present so numerous, and the cultivation of sugar can be so largely extended, and the crop is so remunerative, that there is a prospect of a continued increase in the use of this product, as the wealth and civilization of communities increase, until the present figures become insignificant. The growers of sugar, therefore, need have no fear of extending cultivation too far, as on the American and British scale of consumption the production might be increased three-fold.

At a recent sale of short-horned cattle in Victoria, Australia, fourteen bulls were disposed of at an average of over $440 per head—the highest bringing $790. The oldest was only fifteen months old, and the youngest three weeks. The average price of fifty-seven cows and heifers was nearly $315—the highest $740. Of the cows, many had long since passed their prime, and several of the heifers were quite young.

Professor McCall's report on the dairies and cattle-sheds of Glasgow, and the losses by cattle-disease within the boundaries of that city in 1866, states that the direct loss, in money value, from rinderpest, in Glasgow, during the year, amounted to nearly $45,000; from "puerperal fever," $35,000; pleuro-pneumonia, $273,300; murrain, $36,000—the greatest loss from pleuro-pneumonia, lung disease and murrain being among Irish and other travelled cattle, which had been hurried to the railway stations, thrust from the railway trucks to the holds of the steamers, and there kept for thirty or forty hours huddled together without food or water, and almost without air to breathe.

METEOROLOGY.

[Compiled in the Department of Agriculture, from the reports of observers for the Smithsonian Institution.]

DECEMBER, 1867.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature and amount of rain, (in inches and tenths,) for December, 1867, at the following places, as given by the observers named. The daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MAINE.				°		°	°	*In.*
Steuben	Washington	J. D. Parker	27	44	20	—16	17.3	6.10
Barnard	Piscataquis	Edwin Pitman	28	36	10	—20	9.5	1.80
West Waterville	Kennebec	B. F. Wilbur	26	44	12	— 7	16.4	1.75
Gardiner	....do	R. H. Gardiner	26	44	11	— 7	18.6	1.89
Lisbon	Androscoggin	Asa P. Moore	.....	.....	.....	.....	.....	2.60
Cornish	York	Silas West	26	43	12	— 9	16.4	3.30
Cornishville	....do	G. W. Guptill	26	41	9	— 8	17.0	2.18
Averages							15.9	2.80
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	27	39	12	—22	9.5	2.75
North Barnstead	Belknap	C. H. Pitman	26	46	9	— 5	20.0	1.49
Averages							14.8	2.12
VERMONT.								
Lunenburg	Essex	H. A. Cutting	26, 27	40	19	—25	9.8	1.78
North Craftsbury	Orleans	Edward P. Wild	26	40	12	—14	15.8	2.83
Randolph	Orange	Charles S. Paine	26	42	11	—16	15.0	1.11
Middlebury	Addison	H. A. Sheldon	26	44	12, 13	—13	13.0	1.21
Averages							13.4	1.73
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	26, 28	50	19	— 5	27.8	3.42
Topsfield	Essex	S. A. Merriam	26	47	9, 11	— 3	25.9	1.07
Lawrence	....do	John Fallon	27, 28	59	9	— 2	22.9	3.45
Georgetown	....do	S. A. Nelson	27	50	10	— 6	23.0	1.53
Newbury	....do	John H. Caldwell	27	48	9	— 2	22.3	.....
Milton	Norfolk	Rev. A. K. Teele	26	47	9, 19	0	22.9	2.67
North Billerica	Middlesex	Rev. E. Nason	27	48	11	— 8	22.7	.....
West Newton	....do	John H. Bixby	26	50	11	— 1	20.1	3.15
New Bedford	Bristol	Samuel Rodman	26	51	9	5	26.9	3.90
Worcester	Worcester	Jos. Draper, M. D	27	54	14	— 3	23.0	2.07
Mendon	....do	Jno. G. Metcalf, M. D	27	46	9	— 3	21.0	.....

Table showing the range of the thermometer, &c., for December—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow
MASS.—Continued.				°		°	°	*In.*
Lunenburg	Worcester	Geo. A. Cunningham	28	45	9	— 8	20.7	1.73
Amherst	Hampshire	Prof. E. S. Snell	26	46	14	— 3	22.6	1.51
Richmond	Berkshire	Wm. Bacon	27	44	14	—12	19.6	2.63
Williams College	do	Prof. A. Hopkins	27	46	14	—11	21.3	1.85
Averages							22.8	2.42
RHODE ISLAND.								
Newport	Newport	Wm. H. Crandall	26	48	9	2	26.6	5.47
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	26	46	14	0	22.0	1.86
Columbia	Tolland	Wm. H. Yeomans	26	54	14	— 2	24.7	.....
Middletown	Middlesex	Prof. John Johnston.	26	53	12	1	24.4	2.49
Colebrook	Litchfield	Charlotte Rockwell	27	44	14	—11	19.1	.....
Averages							22.6	2.18
NEW YORK.								
Moriches	Suffolk	E.A.Smith & daugh's	26	59	19	0	31.0	2.98
South Hartford	Washington	G. M. Ingalsbe	26	52	12	—11	19.7	1.30
Troy	Rensselaer	Jno.W. Heimstreet	26	47	13	— 3	23.3	1.23
Garrison's	Putnam	Thomas B. Arden	26	52	13	— 2	25.0	1.58
Throg's Neck	Westchester	Miss E. Morris	26	50	13	6	28.0	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	26	50	13	6	28.0	2.56
Columbia College	do	Prof. Chas. A. Joy	26,27	50	12	3	29.0	1.22
Flatbush	King's	Eli T. Mack	26	49	13	5	29.8	1.35
Newburgh	Orange	James H. Gardiner	26	52	14	0	27.0	1.34
Minaville	Montgomery	Prof. D. S. Bussing	27	44	14	—20	13.4	2.47
Gouverneur	St. Lawrence	C. H. Russell	27	44	19	—19	14.8	0.96
North Hammond	do	C. A. Wooster	27	48	12,13	—12	16.8	2.94
South Trenton	Oneida	Storrs Barrows	22,28	42	14	—22	16.9	6.63
Cazenovia	Madison	Prof. Wm. Soule	27	46	13	—17	20.0	2.22
Oneida	do	S. Spooner, M. D.	27	53	14	—14	21.7	3.74
Houseville	Lewis	Walter D. Yale	27	48	9, 12, 13, 19	-14	16.4	3.25
Depauville	Jefferson	Henry Haas	27	46	12	—11	18.6	2.41
Theresa	do	S. Gregory	.....	.....	19	—20	.....	1.85
Oswego	Oswego	Wm. S. Malcolm	27	49	14	—10	23.4	3.78
Palermo	do	E. B. Bartlett	27	45	14	—24	19.3	5.73
Nichols	Tioga	Robert Howell	27	51	13	— 7	24.1	.....
Geneva	Ontario	Rev. Dr.W.D.Wilson.	26	56	13	— 4	24.7	0.70
Little Genesee	Allegany	Daniel Edwards	27	53	14	—18	23.9	2.05
Buffalo	Erie	Wm. Ives	27	52	14	2	25.6	2.96
Averages							22.6	2.52
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	26	51	12,13	5	27.7	2.20
Newark	Essex	W. A. Whitehead	26	50	14	2	26.9	2.05
New Brunswick	Middlesex	Geo. H. Cook	26	49	13	7	27.6	1.27
Trenton	Mercer	E. R. Cook	28	52	13	8	32.4	3.24
Burlington	Burlington	John C. Deacon	27	55	14	10	31.8	1.80
Moorestown	do	Thos. J. Beans	27	54	14	8	28.5	1.83
Mount Holly	do	M. J. Rhees, M. D	27	54	14	10	30.5	.....
Dover	Morris	Howard Shriver	26	49	13	1	27.1	.....
Haddonfield	Camden	Samuel Wood	27	56	14	9	29.9	3.95

Table showing the range of the thermometer, &c., for December—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
NEW JERSEY—Con.				°		°	°	*In.*
Newfield	Gloucester	E. D. Couch	26, 28	55	13, 14	11	34.1	.....
Greenwich	Cumberland	R. C. Sheppard	26	52	13, 14	13	31.9	0.89
Vineland	....do	John Ingram, M. D.	25	53	13, 19	10	30.2	2.26
Averages							29.9	2.17
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	26	51	14	—22	22.9	2.34
Fallsington	Bucks	Eben'r Hance	27	49	14	9	29.0	3.50
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	27	52	14	10	31.7	2,86
Germantown	... do	Thomas Meehan	28	50	13	7	28.1	.....
Horsham	Montgomery	Miss Anna Spencer	27	47	14	6	28.1	1.20
Dyberry	Wayne	Theodore Day	26, 27	46	14	—27	21.3	1.85
Whitehall	Lehigh	Edward Kohler	26	48	14	— 7	27.3	1.38
Parkesville	Chester	F. Darlington	26	50	13	5	27.8	2.81
Reading	Berks	J. Heyl Raser	27	51	14	1	29.6	.....
Ephrata	Lancaster	W. H. Spera	28	50	14	4	28.7	2.47
Harrisburg	Dauphin	John Heisely, M. D.	27	48	14	4	28.5	1.05
Ickesburg	Perry	Wm. E. Baker	27	56	14	—12	27.5	2.86
Lewisburg	Union	Prof. C. S. James	27	48	14	—23	26.0	2.77
East Tioga	Tioga	E. T. Bentley	27	56	13	—14	26.0	1.80
Pennsville	Clearfield	Elisha Fenton	22, 25, 27	44	13	— 6	22.1	4.54
Franklin	Venango	Rev. M. A. Tolman	27	62	13	—10	26.5	.....
Connellsville	Fayette	John Taylor	27	68	13	— 9	29.4	.....
New Castle	Lawrence	E. M. McConnell	27	61	13	1	28.3	.....
Canonsburg	Washington	Rev. W. Smith, D.D.	.....	.....	13	—15	21.0	2.02
Averages							27.0	2.39
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	28	54	12, 13	6	29.2	2.41
Catonsville	Baltimore	George S. Grape	28	50	13, 14	6	28.3	.....
Annapolis	Anne Arundel	Wm. R. Goodman	27	61	13, 14	14	36.2	2.98
St. Inigoes	St. Mary's	Rev. J. Stephenson	28	62	13	13	36.1	.....
Emmittsburg	Frederick	Eli Smith	27	55	14, 19	10	29.2	.....
Mt. St. Mary's Coll.	....do	Prof. C. H. Jourdan	27	52	14	9	29.7	3.01
Averages							31.5	2.80
VIRGINIA.								
Cape Charles L. H.	Northampton	Jean G. Potts	26	60	13	20	34.5	2.92
Surry C. H.	Surry	B. W. Jones	27	71	13	18	40.7	5.18
Comorn	King George	E. Tayloe	.....	.....	.....	.....	.....	2.74
Lynchburg	Bedford	C. I. Meriwether	28	61	1	19	39.5	.....
Snowville	Pulaski	J. W. Stalmaker	27	64	1	6	34.8	1.69
Averages							37.4	3.13
WEST VIRGINIA.								
Romney	Hampshire	W. H. McDowell	27	62	14	6	34.0	.....
Grafton	Taylor	W. H. Sharp, M. D.	22	60	13	6	35.9	3.50
Cabell C. H.	Cabell	C. L. Roffe	27	74	1	14	39.4	4.60
Burning Springs	Wirt	Rob't H. Bliven	27	71	.....	.....	.....	.....
Averages							70.8	4 05
NORTH CAROLINA.								
Goldsboro'	Wayne	E. W. Adams, A. M.	28	75	14	19	45.0	2.75
Oxford	Granville	Wm. R. Hicks, M. D.	28	66	14	14	39.0	4.00

Table showing the range of the thermometer, &c., for December—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
N. CAROLINA—Con.				°		°	°	*In.*
Raleigh	Wake	Rev. F. P. Brewer	28	73	14, 16	17	41.7	2.95
Albemarle	Stanley	F. J. Kron	28	76	9	13	43.3	5.40
Statesville	Iredell	Thos. A. Allison	28	68	1, 9	12	38.8	2.50
Asheville	Buncombe	E. I. Aston	27, 28	67	13	13	41.1	.....
Averages							41.5	3.52
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	26	75	13	28	49.9	.....
Gowdysville	Union	Charles Petty	28	78	1	21	49.2	.....
Averages							49.6	.....
GEORGIA.								
Atlanta	Fulton	Chas. Deckner	26	73	1	19	46.1	4.99
ALABAMA.								
Moulton	Lawrence	Thos. M. Peters, A.M.	27	70	1	22	47.7	3.35
Carlowville	Dallas	H. L. Alison, M. D.	27	78	1	30	56.3	3.80
Fish River	Baldwin	W. J. Van Kirk	6, 28	76	1	32	.....	2.20
Opelika	Lee	J. H. Shields	27	75	1	25	52.6	.....
Greene Springs	Hale	J. W. A. Wright	27, 28	77	1	28	54.5	2.41
Averages							52.8	2.94
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	27	80	1	35	60.1	0.93
Gordon	Alachua	H. B. Scott	6, 28	78	9	35	59.5	.....
Lake City	Columbia	Galen M. Fisher	25	76	14	32	57.8	.....
Averages							59.1	0.93
TEXAS.								
Waco	McLellan	Edw, Merrill, M. D.	11	85	31	20	61.7	2.30
Austin	Travis	J. Van Nostrand	11	86	31	28	61.2	1.80
Gilmer	Upshur	J. M. Glasco	25	85	31	30	58.9	.....
Averages							60.6	2.05
LOUISIANA.								
New Orleans	Orleans	Robert W. Foster	4, 27	78	31	42	61.2	1.80
MISSISSIPPI.								
Grenada	Yalabusha	Albert Moore	22	84	13	29	55.8	.....
Natchez	Adams	Wm. McCary	6, 17	79	31	30	60.9	2.52
Averages							58.4	2.52
TENNESSEE.								
Tusculum College	Green	S. S. and Rev. W. S. Doak.	27	70	13	15	42.0	.....
Lookout Mountain	Hamilton	Rev. C. F. P. Bancroft	27	70	13	18	43.6	.....
Franklin	Williamson	Jos. M. Parker	27	70	14	25	45.2	.....
Memphis	Shelby	Edw. Goldsmith	27	76	13, 19, 31	26	47.4	1.81
Averages							44.6	1.81
KENTUCKY.								
Chilesburg	Fayette	Sam'l D. Martin, M.D.	11	57	13	10	35.3	6.24
Louisville	Jefferson	Mrs. L. Young	27	70	13	8	36.5	5.62
Lexington	Fayette	S. R. Williams	27	67	1, 13	11	39.0	6.69
Averages							36.9	6.18

Table showing the range of the thermometer, &c., for December—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
OHIO.				°		°	°	*In.*
New Lisbon	Columbiana	J. F. Benner	25, 27	68	13	—13	39, 7	2. 90
Steubenville	Jefferson	Joseph B. Doyle	27	66	13, 14	8	31. 0	.....
Painesville	Lake	E. J. Ferris	25	59	14	6	27. 0	6. 05
Milnersville	Guernsey	Rev. D. Thompson	27	58	13	— 1	32. 8	3. 55
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	25, 27	55	13	— 4	28. 0	3. 16
Do	do	T. A. Smurr, M. D	27	62	13	0	29. 7	.....
Wooster	Wayne	Martin Winger	27	66	13	—13	29. 2	.....
Gallipolis	Gallia	Alex. P. Rodgers	27	65	1	10	34. 2	4. 37
Kelley's Island	Erie	Geo. C. Huntington	27	51	12	9	28. 9	2. 33
Norwalk	Huron	Rev. A. Newton	25	59	13	— 3	28. 9	3. 09
Greenwich Station	do	Mrs. M. M. Marsh	27	63	1, 14	8	30. 4	3. 05
North Fairfield	do	O. Burras	27	60	19	3	.....	.....
Marion	Marion	Miss Kate E. Johnson	27	61	13	6	27. 8	4. 10
Williamsport	Pickaway	John K. Wilkinson	27	73	13	10	32. 0	9. 04
Toledo	Lucas	J. B. Trembly, M. D.	27	60	13	2	28. 3	3. 28
Kenton	Hardin	C. H. Smith, M. D	6, 27	60	7, 30	10	37. 3	5. 06
Urbana University	Champaign	M. G. Williams	27	64	13	4	28. 6	4. 09
Hillsboro'	Highland	J. McD. Mathews	27	63	13	9	30. 7	3. 83
Bethel	Clermont	Geo. W. Crane	27	64	13	6	31. 5	5. 50
Cincinnati	Hamilton	Geo. W. Harper	25	58	13	10	32. 8	3. 07
Do	do	R. C. Phillips	27	68	13	18	37. 4	3. 66
College Hill	do	John W. Hammitt	27	66	13	8	33. 6	5. 40
Averages							31. 4	4. 20
MICHIGAN.								
Monroe City	Monroe	Miss F. Whelpley	27	58	19	— 2	26. 9	2. 13
State Agricult'l Col	Ingham	Prof. R. C. Kedzie	27	50	13	0	25. 3	1. 34
Litchfield	Hillsdale	R. Bullard	25	51	13	— 8	24. 0	1. 42
Northport	Leelanaw	Rev. Geo. N. Smith	25	43	12	8	23. 8	0. 58
Otsego	Allegan	Milton Chase, M. D	25	58	13	2	30. 0	.....
Alpena	Alpena	J. W. Paxton	6	40	7	11	23. 8	1. 88
Central Mine	Keweenaw	Dr. S. H. Whittlesey	25	32	7	— 5	15. 1	8. 70
Ontonagon	Ontonagon	Edwin Ellis, M. D	25	34	8	4	18. 1	.....
Averages							23. 4	2. 68
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M. D	27	69	15	3	32. 9	4. 00
Vevay	Switzerland	Chas. G. Boerner	27	72	15	11	34. 9	6. 40
Muncie	Delaware	G. W. H. Kemper, M. D	25, 27	57	15	— 5	29. 5	2. 40
Columbia City	Whitley	Dr. F. & Miss McCoy	25, 26	60	13	5	26. 4	0. 88
Indianapolis	Marion	W. J. Elstun, M. D	27	63	15	— 2	30. 4	3. 49
Merom	Sullivan	Thomas Holmes	27	61	13	7	31. 0	4. 40
Averages							30. 9	3. 60
ILLINOIS.								
Chicago	Cook	Samuel Brookes	25	60	23	4	28. 4	.....
Do	do	J. G. Langguth, jr	25	58	23	10	31. 6	1. 11
Golconda	Pope	Wm. V. Eldredge	27	72	15	15	39. 5	1. 60
Aurora	Kane	A. & E. D. Spaulding	25	52	23	0	26. 0	1. 29
Ottawa	La Salle	Mrs. E. H. Merwin	24	48	23	7	26. 9	1. 66
Winnebago	Winnebago	J. W. & Miss Tolman	25	45	23	— 6	21. 1	1. 03
Hennepin	Putnam	Smiley Sheppard	25	55	23	2	27. 0	.....

Table showing the range of the thermometer, &c., for December—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
ILLINOIS—Cont'd.				°		°	°	*In.*
Rochelle	Ogle	Daniel Carey	25	45	23	— 5	23.0	.....
Wyanet	Bureau	E. S. & Miss Phelps	25	56	23	0	25.6	1.06
Tiskilwa	....do	Verry Aldrich	24, 25	50	23	4	27.2	.....
Elmira	Stark	O. A. Blanchard	25	50	23	2	26.1	1.25
Peoria	Peoria	Frederick Brendel	25	52	23	— 7	28.6	1.21
Springfield	Sangamon	G. M. Brinkerhoff	31	74	14	10	31.8	.....
Waterloo	Monroe	H. Künster	25	70	18	12	36.8	.....
Dubois	Washington	Wm. C. Spencer	21, 26	60	18	17	35.0	3.45
Galesburg	Knox	Prof. W. Livingston	11	60	18	9	28.0	0.96
Mount Sterling	Brown	Rev. A. Duncan	25	58	18	6	30.2	.....
Augusta	Hancock	S. B. Mead, M. D	25	54	18	4	30.0	1.30
Ridge Farm	Vermillion	Dr. B. C. Williams	27	60	13	6	31.0	.....
Averages							29.2	1.45
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	25	47	7, 29, 30	2	24.0	1.18
Plymouth	Sheboygan	G. Moeller	25	42	7, 8, 23	— 1	20.0	2.05
Milwaukee	Milwaukee	I. A. Lapham, LL.D	3	56	23	3	25.7	1.51
Appleton	Outagamie	John Hicks	25	46	7	0	21.4	1.24
Geneva	Walworth	Wm. H. Whiting	25	47	23	2	23.3	.....
Delavan	....do	Leveus Eddy	25	47	23	— 1	22.5	0.92
Embarrass	Waupacca	E. Everett Breed	24, 26	32	18	—22	18.8	2.40
Edgerton	Rock	Henry J. Shintz	24, 25	48	23	— 4	21.7	.....
Baraboo	Sauk	M. C. Waite	24	41	23, 30	— 6	19.7	3.19
New Lisbon	Juneau	J. L. Dungan	24	46	30	—11	19.3	.....
Galesville	Trempealeau	Wm. Gale, A. B	26	37	30	—18	.....	.....
Averages							21.6	1.78
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	25	34	7	—18	13.8	0.71
St. Paul	Ramsey	Rev. A. B. Paterson	2, 9, 25	33	30	—14	15.5	0.84
Minneapolis	Hennepin	Wm. Cheney	25	34	30	—16	14.9	1.09
New Ulm	Brown	Charles Roos	9	44	18	—20	16.1	0.35
Averages							15.1	0.75
IOWA.								
Clinton	Clinton	Dr. P. J. Farnsworth	25	50	23	4	27.0	2.32
Davenport	Scott	D. S. Sheldon	25	45	23	— 1	22.8	2.22
Dubuque	Dubuque	Asa Horr, M. D	25	42	23	— 2	23.3	1.13
Monticello	Jones	M. M. Moulton	2, 24	40	23	— 4	21.2	0.65
Fort Madison	Lee	Daniel McCready	25	52	18	5	27.2	1.15
Guttenberg	Clayton	Jas. P. Dickerson	24	44	23	— 6	19.1	0.53
Ceres	....do	Jno. M. Hagensick	2, 25	50	22	3	22.5	.....
Mount Vernon	Linn	Prof. A. Collins	24	42	23	— 2	22.3	.....
Iowa City	Johnson	Prof. Theo. S. Parvin	24	44	23	— 2	24.3	1.34
Independence	Buchanan	Mrs. D. B. Wheaton	25	44	23	— 4	19.3	0.60
Do	....do	Geo. Warne, M. D	25	41	23	— 7	20.7	1.40
Waterloo	Black Hawk	T. Steed	10	42	23	0	22.1	.....
Marble Rock	Floyd	H. Wadey	25	43	30	— 5	20.7	.....
Iowa Falls	Hardin	N. Townsend	10	44	28	— 4	23.5	2.46

Table showing the range of the thermometer, &c., for December—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
IOWA—Cont'd				°		°	°	*In.*
Algona	Kossuth	Ph. Dorweiler	9	48	18	—11	18.8	.....
Do	do	James H. Warren	9, 26	38	18	—16	13.4	1.10
Dacotah	Humboldt	Wm. O. Atkinson	9	47	18	— 8	19.7	.....
Boonesboro'	Boone	E. Babcock	15	46	17, 18	— 9	23.1	1.20
Fontanelle	Adair	A. F. Bryant	26	58	18	— 4	26.8	1.45
Logan	Harrison	Jacob F. Stern	10	54	18	— 3	26.2	0.80
Whitesboro'	do	David R. Witter	10	51	17	0	24.5	1.23
Fort Dodge	Webster	C. N. Jorgensen	10	46	18	— 4	21.8	1.32
Burlington	Des Moines	Mrs. L. P. Love	25	68	23	7	28.5	.....
Averages							22.5	1.25
MISSOURI.								
St. Louis Univ	St. Louis	Rev. F. H. Stuntebeck	25	70	18	14	36.0	2.91
Allenton	do	A. Fendler	25	73	18	10	36.1	2.59
Hermitage	Hickory	Miss Belle Moore	24	67	18	8	38.6	0.69
Rolla	Phelps	Homer Ruggles	25	75	18	9	39.3	1.44
Harrisonville	Cass	John Christian	26	64	18	7	34.5	0.99
Oregon	Holt	Wm. Kaucher	16	72	18	5	34.0	1.40
Averages							36.4	1.67
KANSAS.								
Olathe	Johnson	Wm. Beckwith	26	66	18	8	29.0	0.13
Atchison	Atchison	Dr. H. B. & Miss Horn	16, 26	62	18	6	33.1	0.40
State Agricult'l Coll.	Riley	Prof. B. F. Mudge	26	64	30	15	35.1	0.51
Council Grove	Morris	A. Woodworth, M.D.	16	67	18, 31	8	37.0	0.50
Baxter Springs	Cherokee	Ingraham & Hyland	26	76	31	10	42.6	0.40
Leavenworth	Leavenworth	Dr. J. Stayman	26	64	18	6	34.1	0.71
Averages							35.2	0.44
NEBRASKA.								
De Soto	Washington	Charles Seltz	5	55	18	— 3	25.7	0.62
Glendale	Cass	Dr. A. L. & Miss Child	10	68	17, 18, 30	2	27.7	0.85
Dakota	Dakota	H. H. Brown	15	50	18	— 6	25.1	0.60
Omaha Agency	(Reserve)	Rev. Wm. Hamilton	5	52	18	— 4	29.0	0.80
Averages							26.9	0.72
UTAH TER.								
Great Salt Lake City	Great Salt Lake	W. W. Phelps	9	60	29	20	41.2	3.90
Wanship	Summit	Thomas Bullock	15	56	29	— 2	35.1	3.70
Averages							38.2	3.80

NOTES ON THE WEATHER, FOR DECEMBER, 1867.

[Compiled in the Department of Agriculture, from reports of observers for the Smithsonian Institution.]

Gardiner, Me.—The mean temperature of this month for thirty-one years is 22°; this year the first twenty days was only 13.5°, and of the month only 18.22°. No December so cold since 1859, and but five on record as cold as the present.

West Waterville, Me.—The first fourteen days the coldest for December in twelve years. The day following the great storm of Washington to Boston, (12th,) the clouds threatened, but it was "too cold to snow."

Lisbon, Me.—Month cold and uncomfortable; thawed in the sun on only three days, yet the ground was frozen only six inches deep on the 15th, whereas it is usually sixteen to eighteen inches.

Stratford, N. H.—Coldest December in ten years by 4°.

Lunenburg, Vt.—A cold but pleasant month. 18th, 3 a. m.—Earthquake felt in three distinct waves, passing from south to north, and lasting about thirty seconds.

Middlebury, Vt.—18th, 3 a. m.—Several shocks of earthquake, at intervals of three or four seconds, the whole lasting about twenty seconds. A person sleeping with the head to the south was rolled toward the east by it. From the papers it appears to have been more severe north of this, and in Canada.

Kingston, Mass.—A very cold month—5° colder than in 1866. From 12th to 16th almost incessant snows.

Kingston, Mass.—No sleighing till 17th, and not much wheeling since; yet not much snow at any time. Ponds, wells, &c., lower than usual.

Mendon, Mass.—Ten days' poor sleighing during the month.

Williams College, Mass.—No sleighing during the month

Pomfret, Ct.—The coldest December in fifteen years. The last half was considerably warmer than the first.

Middletown, Ct.—The river closed with ice on the 9th.

Colebrook, Ct.—Frequent snow squalls during the month, but not more than four inches fell at any time.

South Hartford, N. Y.—Champlain canal closed on the 5th. Lake Champlain crossed by teams, from Grand Isle to Plattsburg, on the 18th—said to be the earliest on record. Several shocks of earthquake felt at 3 a. m. on 18th—a heavy jar, with a low rumbling noise. In Ogdensburg it was quite violent, shaking the firmest buildings, and lasting about two minutes; in Burlington lasting about thirty seconds; in Whitehall two distinct shocks, lasting about twenty seconds each, with an interval of about a minute between. At Fort Ann a house was shaken so violently that the door bell rang. It was felt in Fair Haven, Rutland, Dresden and Sandy Hill. The month was cold and dreary—little sleighing—the ground frozen to a great depth—springs and streams very low.

Troy, N. Y.—A slight shock of an earthquake reported in this city on the 18th, at 3 a. m. It was sensibly felt in Albany. The mean temperature of December lower than in any December in eleven years, and the amount of rain and melted snow the least since 1861.

Gouverneur, N. Y.—Earthquake on 18th, about 3 a. m., accompanied by a loud, roaring and rushing noise; vibrations regular, distinct, and about six in a second. Two fainter shocks followed at intervals of a few minutes, and a fourth was felt at 6 a. m. The vibrations seemed to be from northwest to southeast, while the shocks seemed to pass eastward. The shocks succeeding the first were felt rather than heard.

North Hammond, N. Y.—On the 18th, at 2.50 a. m., an earthquake—there

severe and distinct undulations, shaking strong buildings, breaking crockery and window lights, overthrowing wood-piles, &c., the whole lasting sixty-five seconds. It moved toward northeast. The year closes very dry; swamps dry, streams low, the St. Lawrence four feet below high water mark.

Minaville, N. Y.—The month very dry—wells failed in many places.

South Trenton, N. Y.—18th, 3 a. m., shock of an earthquake distinctly felt—duration some eight seconds—the first known in this county.

Oneida, N. Y.—18th.—Slight shock of an earthquake this morning, lasting about a minute.

Depauville, N. Y.—18th, 2.48 a. m., heavy shock of an earthquake from southwest to northeast, lasting about fifteen seconds. The trembling of the ground shook houses and opened doors. The noise lasted about a minute. The atmosphere was clear and calm; the undulations were horizontal. A shock or two preceded this one. This was the coldest December in thirty years.

Theresa, N. Y.—About 3 a. m. on the 18th heard a hissing or blowing sound, like a strong wind, though the air was calm. It was followed by a strong vibratory movement, shaking the house, and rattling doors, windows and furniture, lasting but a few seconds. The whole lasted one minute.

Palermo, N. Y.—18th, at 3 a. m., an earthquake shook houses, furniture, &c., lasting over a minute. It was a succession of waves, from south to north, most violent at first, and gradually diminishing in volume. This has been the coldest December in fourteen years.

Nichols, N. Y.—River frozen over the second time on the 9th, and open again on the 29th and 30th.

Geneva, N. Y.—The drought surpasses any ever known here. Rain since July, only 6.235 inches—less than half the usual average; for November and December, only 1.027 inch—less than one-fourth the usual average.

Buffalo, N. Y.—27th, slight shock of an earthquake at 3 a. m. Heavy thunder the same day at 4 a. m. The mean temperature of the month is below the December average for the past ten years. Passable sleighing from 9th to 22d. Loose floating ice in the lake from 16th to 22d.

Newark, N. J.—Temperature of the month 6° below the average of twenty-four years, and this not owing so much to extreme cold as to the number of cold days, especially in the first half of the month—the lowest temperature of only two Decembers of the twenty-four occurring so early. The storm of the 12th, from the violence of the wind and low temperature, proved more trying than any for many years, and extended throughout the middle and eastern States.

Trenton, N. J.—12th, heaviest snow-storm ever known here so early in the season.

Burlington, N. J.—12th, steamboats stopped, and river frozen over. 28th, ice broken up in the Delaware.

Dover, N. J.—Winter unusually early and severe. Streams low, wells and springs failing.

Greenwich, N. J.—12th, thermometer fell all day—severest rain, hail and snow-storm for eleven years. 28th, moles running, and caterpillars crawling.

Fallsington, Penn.—The past has been the coldest December since 1859, and with greatest quantity of snow—in all eighteen inches.

Philadelphia, Penn.—31st, storm of snow, (three inches,) which continued into the new year.

Dyberry, Penn.—7th, Delaware and Hudson canal closed. 13th, first sleighing—lasted till 27th. For three months previous to the 27th streams were very low, and many springs and wells failed.

Whitehall, Penn.—The average mean of the month is lower than any December in eleven years.

Reading, Penn.—About sixteen inches of snow fell this month—good sleighing from 12th to 25th.

Tioga, Penn.—To the 12th the weather steady, moderately cold. 12th, severe snow-storm, with low temperature, unusual so early in the season. From 12th to 23d, moderately and steadily cold, with good sleighing. 27th, ice (eight inches thick) broken up in the river. Wells dry on uplands, and people suffering much inconvenience for water.

Pennsville, Penn.—The month mostly moderate; frequent rain and snow, but no very high water.

Franklin, Penn.—Allegany river closed on 12th, and opened again on 22d. Ground free from frost on 26th, and frozen six inches deep on 31st.

New Castle, Penn.—Snow-storm of unusual severity from northeast on 12th, with temperature of 13°. 31st, the grass coming out from under the snow as fresh and green as in September.

Woodlawn, Md.—Susquehanna at Port Deposit closed by ice from 10th till 28th; ice freshet from 28th till 31st. Good sleighing from 12th to 25th.

Emmittsburg, Md.—On 11th, commenced snowing and raining alternately until night, when it rained, hailed, and snowed, with strong wind from the east, until 10 p. m. on the 12th.

Cape Charles Light-house, Va.—Heavy thunder at 10 a. m. on 12th. Tide rose to unusual height on 13th, and very nearly swept over the island.

Surry C. H., Va.—12th, the whole day misty or rainy and calm; snow at 8 p. m.; windy and very cold, and so continued until 2 p. m. on 13th.

Snowville, Va.—3d, mountains covered with snow the first time this fall. 12th, rain all day; at 4 p. m. snow fell, scarcely to cover the ground.

Grafton, W. Va.—Snow-storms at intervals from 10th to 15th.

Burning Springs, W. Va.—Little Kanawha river rose six feet on night of 12th, allowing accumulations of petroleum (60,000 barrels) to be taken to market. Another rise of three feet on night of 25th. A remarkable gas-well at this place supplies the entire fuel for thirty wells, (some of them a mile distant,) eighty stoves, and light for every house.

Goldsboro', N. C.—Much thunder and lightning during night of 25th.

Oxford, N. C.—Light fall of snow on 1st—very early for this latitude—and rain and snow together on the 12th.

Albemarle, N. C.—Thunder-storm from southwest on 26th, forenoon. Up to 29th weather mild, and strawberries in bloom in old fields. On 29th, winter in earnest—snow, hail and sleet for two days; much stock must have perished in fields and woods.

Statesville, N. C.—At 4 a. m. on 12th, vivid, forked flashes of lightning, with heavy thunder south and southwest; thermometer at 52°. 31st, ground has not been frozen more than an inch; now free from frost.

Gowdysville, S. C.—December a mild month. On 30th moderate rain, changing to frozen rain, and lasting till 10 p. m. on 31st—perhaps the greatest amount of frozen rain that has fallen here in many years.

Atlanta, Ga.—Thunder-storm from southwest to northwest on 12th, at 3 a. m. to 7 a. m.

Moulton, Ala.—Not one fair day this month, though there has been little rain. Temperature mild, perpetual roses budding, and hyacinths, tulips, &c., pushing forth. On 11th, at 9 p. m., frequent lightning. On 12th, high winds from the west all day; storm on the seaboard.

Havana, Ala.—11th. Remarkable storm at night; for an hour lightning in the northwest was so vivid and continuous as to resemble northern lights. The sky overhead was almost clear, moon shining brightly, and air calm. Thunder faintly heard in the distance. After it passed around to the north, with every indication of a clear night and morning, at 12.30 a. m., on the 12th, the sky was suddenly overcast, and a violent gale sprung up, with rain, and thunder and lightning unusual for a winter storm. It lasted one hour.

The month has been unusually mild, dry, and cloudy, though with less than half the usual amount of rain.

Fish River, Ala.—From 17th to 29th, warm and dry; "oldest inhabitants" never saw so much warm weather, in the same time, at this season. The results are ripe dewberries and peach blossoms on 28th. No frost since 16th, and but little then.

Jacksonville, Fla.—Thunder-storm on the 13th.

Waco, Texas.—Mild and very dry until 29th, when it commenced raining, and in the night snowing, continuing through the 30th.

Austin, Texas.—Weather remarkably mild and "northers" moderate until 28th, at 5.30 p. m., when a severe "norther" set in. 29th, rain all day. 30th, about two inches snow. 31st, clear and cold.

Grenada, Miss.—Month generally unusually warm and cloudy, but free from rain and snow. 11th, at night strong wind, rain, hail, and heavy thunder.

Natchez, Miss.—11th, light rain at 6 a. m.; wind strong from southwest at noon; sharp lightning in the west and northwest at 9 p. m. 12th, severe storm from northwest last night, accompanied with lightning, thunder, rain, and terrific wind.

Lookout Mountain, Tenn.—12th, violent thunder-storm, with very high wind. 29th, remarkable storm, continuing till January 2, 1868; the rain congealed as it fell, and coated everything with ice, in some places three inches thick. Many trees broke off near the ground; nearly all lost limbs and branches. The temperature hovered about the freezing point until, on January 2, it suddenly rose, and this "coronation of winter" dissolved in a brisk, warm rain.

Memphis, Tenn.—High wind from west and northwest on the 12th, until 3 p. m. Snow on 30th and 31st, depth 6.25 inches; a greater quantity than fell in the last two winters. The past month has been very cloudy, compared with the small amount of rain.

Franklin, Tenn.—On 10th, at 7 p. m., the sky was suddenly obscured with clouds; wind blew from all quarters in a few minutes, with lightning, thunder, and rain. From 16th to 27th weather very mild; unfavorable to fruit buds. 29th, rain, sleet, and snow to the 31st, when snow was twelve inches deep, damp, and compact; the longest fall of snow since March, 1843. The thermometer for thirty-six hours only varied from 31°.5 to 32°.15.

Chilesburg, Ky.—Unusual amount of cloudy weather this month, yet, until the 22d, there was not water enough to raise the streams and fill the ponds. 31st, snowing, raining, and hailing all day; bushes and trees encased in thick ice.

New Lisbon, Ohio.—27th, lightning and thunder last night; frost out of the ground.

Steubenville, Ohio.—The snow of 11th, 12th, and 13th was sleety, with a strong wind, changing from south and southwest to northwest, northeast, and north.

Painesville, Ohio.—Frogs heard peeping on 27th.

Kelley's Island, Ohio.—12th and 13th, the most violent storm of snow and driving wind from northeast that has occurred in thirty years. 14th, lake covered with ice. The month remarkable for cloudiness, humidity, and great and sudden changes in the barometer.

North Fairfield, Ohio.—Severe snow-storm from northeast on 12th; probably twelve inches fell by the 13th. December very cold, with unusual amount of snow.

Marion, Ohio.—10th, 2 p. m., rain. 11th, 11 p. m., snow, continuing through 12th, with wind from northeast, and ending on evening of 13th.

Williamsport, Ohio.—Hail and rain on 17th, accompanied with thirteen heavy peals of thunder. Storms, with thunder, on 21st and 22d.

Kenton, Ohio.—On 12th, one of the most violent snow storms ever witnessed here.

Urbana, Ohio.—The mist and rain of 11th changed at night to snow, continuing through the 12th, with the wind a gale from north and northwest—the most violent storm remembered here. 25th and 27th, thunder each evening.

Litchfield, Mich.—6th, wind almost a hurricane from noon till 11 p. m.; uncommon for this section. Month closes with springs very low.

Northport, Mich.—The month mild, but unusually windy; but little snow has fallen. The bay and lake continue free from ice. The year closes with a beautiful day.

Central Mine, Mich.—The winter, so far, mild. The month stormy, with unusual snow—at present, four feet deep in the woods.

Ontonagon, Mich.—Lake Superior entirely open on 31st.

Richmond, Ind.—On 11th, p. m., rain; colder at 9 p. m.; turned to fine hail at midnight. On 12th, fell very fast, with snow driven by a hurricane from northeast most of the day.

Vevay, Ind.—12th, violent snow-storm from northeast from 6 a. m. to 11 a. m. On 22d, a. m., a hurricane of great violence from west and southwest, accompanied by lightning, thunder, hail, and rain; did much damage on land and water. From 15th to 19th, a great quantity of ice in the Ohio. On 20th, the first coal barge passed down; none had passed for six months on account of low water.

Columbia City, Ind.—There is, and for three months has been, a scarcity of water.

Indianapolis, Ind.—12th, rain last night changed to sleet, and, near day, to snow, lasting through the day, with strong wind.

Chicago, Ill.—Harbor open yet for navigation, but nearly all vessels laid up.

Aurora, Ill.—Month unusually fine; rivers low; muskrats have built in the channels of the creek and bayous.

Winnebago Depot, Ill.—On the 11th a. m., high wind from the northeast; at noon, fine rain and storm increasing till 6 p. m., when it changed to snow. Storm ceased before daylight on the 12th.

Hennepin, Ill.—Month exempt from storms and violent changes of temperature. Small streams so low that a fall to zero would stop their flowing. Much difficulty in watering stock.

Rochelle, Ill.—Light rain from northeast on 12th, freezing as it fell. Frequent rain and snow during the month, but small quantities each time.

Wyanet, Ill.—December uncommonly mild, with but few sunshiny days.

Springfield, Ill.—Month warm and dry. On Christmas very warm, with heavy thunder-shower from southwest.

Waterloo, Ill.—On 11th, 6 to 7 p. m., rain with thunder and lightning, followed by snow at midnight.

Dubois, Ill.—Distant thunder in the west, at 8 p. m., on the 11th. The warmest December for several years, being 7.°2 warmer than in 1866; and 7.°5 above that of 1865.

Galesburg, Ill.—Except a day or two the month has been quite pleasant, with little snow and hardly any sleighing.

Augusta, Ill.—A drizzling rain on the 11th, turned to snow on 12th; about two inches of snow fell.

Milwaukee, Wis.—21st. Heavy snow-storm from southeast; 25th, snow gone.

Embarrass, Wis.—The month very windy, and sleighing at least twenty days earlier than last year.

Baraboo, Wis.—The mildest December for twenty years.

Clinton, Iowa.—Month very mild; but little rain or snow; about a week's sleighing, ending on 28th.

Dubuque, Iowa.—Mississippi frozen over on 8th; 12th, high wind all last night—snow much drifted.

Ceres, Iowa.—31st, ground frozen 2 feet; wells nearly all dry; snow gone; weather pleasant.

Waterloo, Iowa.—Wells and streams extremely low.

Marble Rock, Iowa.—The most beautiful winter weather I ever saw closes the year.

Ten miles southwest of Algona, Iowa.—Violent gale from north-northwest from 4.30 a. m. to 7 a. m., on 6th. On 11th, at 7 a. m., rain, which froze as it fell; 11 a. m., snow; 12th, in the night, snow; 13th, snow all day.

Algona, Iowa.—The latter part of the month remarkably pleasant.

Boonsboro', Iowa.—Month unusually mild; temperature 1° above that of 12 years past.

Logan, Iowa.—Very bland, pleasant weather all December and all fall; ground frozen eight inches; the Missouri frozen over on the 15th.

Hermitage, Mo.—Month remarkable for the almost entire absence of rain and snow, and the high temperature about Christmas.

Atchison, Kansas.—31st, no ice in the Missouri opposite this to impede navigation.

Manhattan, Kansas.—Dry, mild month; rivers not closed; farmers able to plough except on three days.

Council Grove, Kansas.—Pleasant Indian summer weather up to 11th, when snow whitened the ground. 21st, heavy thunder twice, with frequent lightning. 23d to 26th, inclusive, Indian summer weather.

De Soto, Neb.—18th. Missouri closed with ice; 31st, river lower than for many years.

Glendale, Neb.—Only 5.55 inches of rain and melted snow since July 18th. December very pleasant and dry; the mean temperature some 11° higher than the last eleven Decembers.

Dakota, Neb.—Missouri river closed with ice on 1st; springs and streams low, and roads dusty.

Omaha Agency, Neb.—Month generally pleasant The river closed early in the month.

Great Salt Lake City, Utah.—This fall is unprecedented in Rocky mountain history. On the 20th and 21st, snow about three inches; 22d, rain from south and west and snow gone; 24th, 6 to 8 a. m., rain in torrents with westerly wind, melting snow in the mountains and causing floods that have done immense damage. A settler of 1847 never saw the streams so full. Christmas, mild but misty; 26th, rain; 29th, the ducts which convey water around the square in the city choked with ice for the first time this winter. Skating commenced; no snow around us, except away up in the mountains.

Wanship, Utah.—A most miserable, rainy, muddy, windy month. The grasshoppers (locusts) having used up nine-tenths of the grain, farmers have nothing to trade, which makes dull, hard times.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

FEBRUARY, 1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Washington, D. C., February 29, 1868.

SIR: I respectfully submit for publication the accompanying matter for the February report, as follows: Beet-root Sugar, a letter from the Commissioner of Agriculture to Hon. S. M. Cullom, M. C.; Remission of Customs Duties on Living Animals, Plants and Seeds, in communications from the Commissioner of Agriculture to the Committee on Agriculture of the House of Representatives; Special Statistics of Farm Resources and Products, continued from the February number, embracing analyses of returns from the southern States; Horse-hoeing Wheat; Agriculture in Common Schools; Castor Oil Bean; Experiments with Farm Fertilizers; The Reports of Agriculture; Tables of Wool Imports for four months; Meteorology.

Respectfully,

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
Commissioner of Agriculture.

BEET-ROOT SUGAR.

DEPARTMENT OF AGRICULTURE,
Washington, D. C., February 28, 1868.

SIR: I respond with pleasure to your request for a statement giving an outline of the leading facts of beet sugar production. As investigations of the subject are now in progress in this office, including original analyses of the beet at different periods of its growth, a complete history of the enterprise in this country, and a synopsis of European experience and its results, I will at this time only give a brief view of the importance and extent of the beet sugar business in its present status.

Without government encouragement at the outset it might not now be numbered among the industries which bless the world. When the first Bonaparte fostered the art of extracting sugar from this garden vegetable as a practical matter, the possibility of obtaining a good article had long previously been demonstrated by chemists; it only remained to be shown that the manufacture could be conducted with profit on a large scale. His object was to exclude from his empire the sugar of British colonies, the price of which was then four or five francs per pound. A prize of one million francs was offered by the French government for the most successful method of obtaining a supply of indigenous sugar. It was soon evident that such a supply must be furnished from the beet root.

In Poland, also, in 1812, government loans and exemption from conscription, in aid of the enterprise, were freely offered. In fact, the principal governments

of continental Europe vied with each other in perfecting and extending the new business.

A manufactory of beet sugar was in successful operation in Silesia as early as 1805; and in France repeated experiments were undertaken a few years later. Up to 1818 no very marked or rapid progress was made, though the business was constantly extending.

In 1839 the manufacture, already established upon a solid footing, embraced the operations of 268 factories in France, Germany, Sweden, and Russia. In 1848 France alone had 294; Prussia 346, and Russia 425. The present number of factories in France (according to De Neumann) is 449; many of them are far more extensive than those of former days, and fourteen of the number have been established during the past year. At the first of January, 1868, 3,173 refineries of beet-root sugar were reported as in operation in Europe.

The total product in 1828 is stated to have been 7,000 tons; in 1851, 180,000 tons; and in 1867 the enormous quantity of 663,000 tons, or 1,485,120,000 pounds, worth $100,000,000, or about seven cents per pound.

Sixteen years ago, France was able to manufacture half of her total consumption of sugar, or 60,000 tons; and Belgium, consuming 14,000 tons, imported, in 1851, but 4,000 tons. Germany, at the same date, produced 43,000 tons; Austria 15,000, and Russia 35,000 tons; the latter country also importing, at that time, 50,000 tons of sugar in addition to the home product. The total manufacture of Europe, as stated above, has been almost quadrupled since that date, and cane sugar in several of those states in now scarcely known.

The amount manufactured in France during the three months ending November 30, 1867, was 120,553 tons—18,613 more than was made in the same period of the previous year.

During the past year, 15,600 tons of raw beet sugar have been imported into London, yielding customs revenue to the amount of £159,883, or more than three quarters of a million of dollars. An English sugar refiner, who uses 300 tons of raw beet sugar per week, now offers eighteen shillings ($4 50) per ton for 6,000 tons of English sugar beet.

The product of beets per acre is from fourteen to fifteen tons in France and Belgium. Enormous crops have occasionally been reported. The English Gardener's Chronicle contains the statement of M. de Gasparin of twenty-seven tons seven hundred weight grown upon thirty-nine perches sixteen square yards, or nearly 110 tons per acre. He sowed the seed under glass, transplanted plants in April, hoed repeatedly, and irrigated every two weeks.

A ton of beets yields about 100 pounds of raw sugar. At first the proportion of sugar obtained was but three per cent. It was increased to six, and even to seven and a half per cent.

The beet cake for feeding purposes, the molasses, alchohol, and other products obtained greatly increase the aggregate which makes the total value of this branch of industry. Beet sugar districts become so enriched that far greater amounts of the cereals and other products of agriculture are obtained than before beet factories were known.

The growing of the beet requires rotation, as well as thorough culture and careful weeding. It would therefore be a boon of untold value to our wheat-producing districts of the west, which are decreasing year by year in returns for labor expended from these causes, and the additional neglect of stock growing.

A promising beginning in beet-sugar making has been commenced in Chatsworth, Illinois, and fine samples of its sugar may be seen in the museum of this department. A history of this enterprise will hereafter be given. It has, of course, met with difficulties, surrounded by new circumstances, with high rates of labor and interest on money, which will all, I have no doubt, be eventually overcome. Many individuals and companies stand ready to engage in the business when its success upon our soil is fully demonstrated. Then in the west,

as in Europe, flourishing towns and villages will spring up upon prairies that are now without population or improvement, and an impetus will be given to all other business by the successful manufacture of a raw product, taken from adjacent fields, involving the supply of an imperative want of every class of our people.

Another feature of the business is worthy of attention. The production of the sugar beet by farmers, for sale in a dried state to manufacturers of sugar, may be made to yield an immense revenue to rural industry. The beets are cut in small pieces, after washing, and dried by artificial heat, by which process from eighty to eighty-four per cent. of their weight is expelled, leaving a residue containing fifty-five per cent. or more of sugar, which is extracted by infusion, often after months of delay and transportation to distant factories. A specimen of this dried beet can be seen in this department, made by Thomas Gennert, of Chatsworth, Illinois, who claims about eighty per cent. of sugar in it. As an illustration of the extent of such a business, a record may be cited of an establishment for obtaining sugar by infusion of dried beet, at Waghausel, near Carlsruhe, in the duchy of Baden, in which 3,000 people were employed, a capital of eighty millions of francs (or sixteen million dollars) used, and twelve acres of land covered with buildings.

The large and increasing quantities of sugar and molasses required for consumption in this country, and the amount of money paid for foreign labor in its production, can be appreciated by a glance at the following statement of imports for five years, which is in addition to a small domestic product of cane, maple, and other sugars, and large quantities of sorghum sirups; a small amount, also, by indirect trade, is not included, on account of incompleteness in the official statement of imports:

Year.	SUGAR.		SIRUP AND MOLASSES.	
	Pounds.	Dollars.	Gallons.	Dollars
1862	557,137,529	20,357,090	25,157,280	3,427,813
1863	518,594,861	19,082,017	31,206,986	4,732,378
1864	632,230,247	29,660,076	33,571,230	7,256,064
1865	608,855,989	25,248,299	43,309,003	7,471,467
1866	977,885,449	39,595,677	47,768,348	7,227,351

Here is a total of $133,943,159, gold value, paid for foreign sugar in five years, and $30,115,073 for the molasses, an average of about $33,000,000 per year, and more than $50,000,000 in currency, the most of which, if not all, should be retained at home. In view of the great success of the business in Europe, the American people owe to the world's estimate of American enterprise a determined and persistent effort for its establishment here. I see no reason to despair of its complete accomplishment. I shall therefore deem it a duty to encourage and forward this result so far as official means and opportunities may permit, and I would respectfully call the attention of Congress to the importance of practical investigations among the factories of Europe, tending to exhibit, especially, the comparative economy of processes of manufacture, and to show how the peculiar difficulties attending the experiment here may be overcome.

I am, very respectfully, your obedient servant,

HORACE CAPRON,
Commissioner.

Hon. S. M. CULLOM,
Member of Congress.

FREE IMPORTATION OF ANIMALS, SEEDS, AND PLANTS.

The following letter to the congressional Committees on Agriculture asking the remission of duties which produce little or no revenue, and act only as a bar to agricultural progress, will meet with a hearty response from all progressive farmers:

SIR: I take occasion, in transmitting the accompanying memorial of the Tennessee Horticultural Society, for the remission of import duties upon agricultural seeds and bulbous roots, to ask the attention of Congress to the importance of removing, as far as practicable, all restrictions upon the importation of living plants, as well as living germs, (or seeds,) floral or agricultural, intended to promote the introduction of new varieties of useful or ornamental fruits, flowers, vegetables, or plants.

I would not ask the removal of one of these barriers, so far as they might relate to food supplies or raw products for manufacture, as in the case of linseed and other oil seeds imported for manufacture, and would avoid the least appearance of fostering injurious competition with a single branch of agricultural production, or of attempting to shirk the slightest burden of taxation; but the free admission of such seeds and plants as are intended for planting and propagation, with the especial design of increasing the variety of our agricultural and floral wealth, would neither affect injuriously the business of any producer, or reduce to any appreciable extent the revenue derived from customs.

The imports of foreign garden and agricultural seeds, seeds of flowering plants and bulbous roots, for several years past, have been as follows:

1863	$9,169
1864	76,227
1865	42,216
1866	140,169

Thus in four years the total value of imports, of all these items, amounts to little more than a quarter of a million of dollars; yet the increased cost of importation, by reason of the customs duties charged, is sufficient to deter local societies, with no funds except the voluntary contributions of members or others, from the attempt to introduce new plants or seeds of rare varieties.

It is because this spirit of improvement needs stimulation rather than repression in this country, and not on account of the pecuniary trifle represented by the duty, that this concession is asked. It would be a governmental recognition of a spirit of progress in agriculture which would invite renewed efforts for the dissemination of new varieties and promising novelties, and thus confer a far greater boon than the mere remission of the duties now imposed.

I have the honor to be, very respectfully, yours, &c.,

HORACE CAPRON, *Commissioner.*

Hon. SCHUYLER COLFAX,
Speaker of the House of Representatives.

The Commissioner has also sent to the same committees a communication favoring the policy of admitting thorough-bred animals, for the improvement of farm stock, without duty. The twenty per cent. now imposed, while it produces little revenue, acts as a discouragement of importation. Agricultural societies and prominent stock-growers have urged the policy of such a concession to an awakening spirit of agricultural improvement. An improvement of twenty-five per cent. in weight and value of beeves, from the use of foreign thoroughbreds, is claimed; and an equal benefit from the importation of improved merinoes is conceded, while a larger infusion of the best mutton blood is now desired, and a finer variety of fine wool is needed.

The Commissioner closes as follows: "As an additional reason for such action at the present time, it should be stated that the Canadian government has remitted a similar duty in an order dated December 31, 1867. This, with the advantage in exchange enjoyed by the Canadian breeder, works a still greater injury to our own improvers of stock.

"In view of these and other considerations, I respectfully suggest the propriety of the early passage of a joint resolution of the following purport:

"*Be it enacted, &c.*, That horses, horned cattle, sheep, swine, and other animals, including poultry and birds, when imported by agricultural societies, or by private individuals for the improvement of stock, shall not be liable to the customs duty charged upon farm stock imported for other purposes."

SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

A continuation of the analysis of "special statistics of farm resources and products," which included the eastern and middle States in the last report, will embrace the southern States in this number, to be followed by a statement for the western States in the March issue. The following are the inquiries upon which the returns are founded:

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?
2. What is the average value of wild or unimproved tracts of land; and what is the character, quality, and capabilities of such land?
3. What marked or peculiar resources have you in soil, timber, or minerals; and what is the state of their development, or inducement for attempted development?
4. What crops, if any, are made a specialty in your county; and what facts illustrating their culture, quantity, and the profit derived?
5. What kinds of wheat are cultivated; and which of them are preferred; and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?
6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?
7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

MARYLAND.

1. Of the counties of this State from which returns have been received, Alleghany, in the extreme west, reports an advance of fifty per cent. in the value of farm lands as compared with the census estimates of 1860, and the adjoining county of Washington about thirty-three per cent.; Baltimore county reports an increase of thirty-five per cent., Montgomery, Cecil and Talbot about thirty per cent., Harford twenty per cent., Kent ten per cent., Queen Anne and Anne Arundel no advance, while St. Mary's shows a decline of about twenty-five per cent. Along the line of the Metropolitan branch of the Baltimore and Ohio railroad, in Montgomery county, lands have advanced twenty-five per cent. more than in other portions of the county, while the rich bottom lands along the Potomac have decreased in value from the difficulty in procuring labor to work them. In Queen Anne the prices are reported considerably lower than in 1864–'65.

2. The average price of wild or unimproved lands in the several counties named ranges from $1 to $65, according to location, resources, &c. In Washington county the waste lands are chiefly in the mountains. In Montgomery the average is from $10 to $20, with little inclination to sell; the lands are principally old fields, grown up in pine and sedge, but with a liberal application of fertilizers and labor are susceptible of high cultivation. Baltimore county contains a large area of unimproved lands, part forests, heavily timbered, part worn-out fields, but contiguity to the metropolis of the State is increasing their market value, and they are now selling at an average of $65 per acre. The unimproved land in Harford is chiefly wooded, and the average value is given at $40 per acre. Sedge fields may be purchased at about the same figure. Cecil reports an average of from $10 to $30, and Kent $10 per acre, most of the latter being low wet lands, studded in many instances with scrubby timber, but clearing and draining would render most of them valuable. In Queen Anne much of the waste land is rather swampy, but easily drained. The timber is principally sweet gum and white oak. There are some worn-out lands, but where the ground is high enough for fruit they can be made valuable at comparatively small expense. The average value is from $15 to $20. In Talbot the unimproved land has good red clay subsoil and sandy loam, easily improved

worth now an average of $20 per acre. Anne Arundel reports an average of $35 per acre for such lands, being susceptible of improvement and capable of producing fruits and good quality of tobacco. In St. Mary's this class of land is chiefly timbered with a light growth of pine, sometimes oak and chestnut, and worth, remote from navigation, $10 per acre, and $20 near the water.

3. The soil of Maryland is various. In Frederick, Washington, and Cumberland, superior farms for wheat are found, and portions of the two former are highly cultivated and held at high prices. Some of these farms were worth $150 per acre before the war, and the real estate of these counties will to-day command nearly as much in gold as in 1860. The lands between the Chesapeake and Potomac are, in part, sandy loam, underlaid with marl near rivers, and in the Black Forest of Prince George's are black soils almost as rich in organic matter and as productive as the best prairie soils of the west. These lands are very cheap at $50, the price at which they have been offered. In Kent, a light loam prevails, inclining to sand, highly susceptible of improvement with lime and ashes. Queen Anne has a loam underlaid with red clay. Harford has sandy and clayey loams. The Eastern Shore is sandy but rich in marls, and very productive, with the use of shell lime, marl, and sea-weeds, all cheap and accessible. It is, perhaps, unsurpassed as a peach region. Timber is yet abundant, of nearly all kinds common to Pennsylvania and Virginia.

Minerals abound. In Montgomery is found gold, copper, iron, and chrome. Near Gaithersburg are beds of magnetic iron ore pronounced very rich by Professor Silliman. Iron is also reported in Baltimore, Harford, and Talbot, and furnaces are working in several counties.

In Cumberland, coal lands are worth from $25 to $5,000 per acre. The coal shipped in 1866 amounted to 835,939 tons—550,519 by the Baltimore and Ohio railroad, 285,420 by the Cumberland canal; and in 1867 to 939,917 tons—556,235 by railroad, and 381,682 by canal In this county "farming pays good profits, as the mining regions consume farm products," a practical truth which contains the germ of wealth, population, and high civilization for the mountain section of the South, unless a false system of political economy shall be permitted to seal up such resources for the use of future generations, and repress the advance of immigration, and convert these mountain glades into solitary sheep-walks for the production of wool that shall search in vain for an American market.

Our correspondent in Baltimore county says: "The timber is of good quality, oak, hickory, chestnut, and some locust. The timber is taken to Baltimore for building purposes, agricultural implements, machinery, freight cars, ship-building, and for many other purposes. The large beds of clay near Baltimore have always been celebrated for producing brick unequalled. This clay is also manufactured into stone and earthen ware. Brown hematite iron ore, magnetic oxide and carbonate of iron, are found in many parts of the county and smelted in several furnaces. Copper mines are worked to some extent. Extensive beds of chrome furnish most of the supply of the United States, and much of it is exported to Europe; these mines are valuable and supposed inexhaustible. Large quarries of fine building stone are extensively worked. Fine grained, white marble exists in unlimited quantities. This marble was used for the extension of the Capitol at Washington, and the alum marble of this county for the construction of the Patent Office at Washington."

4. In most of the counties a mixed husbandry prevails, the climate and soil being suited to the cultivation of the cereals, root crops, tobacco, fruit, &c. Sheep and the dairy receive considerable attention in Alleghany, and the products, with the general farm crops, find ready home market in the mining districts. Washington county makes a specialty of wheat, and no failure has occurred in the crop since 1837, though rust, &c., injures it occasionally. Corn,

oats, rye, and hay do well, but our reporter says: "Our farmers have long practiced the skimming system of farming." In the northwestern part of Montgomery county a fine quality of tobacco is raised, claimed to be equal to any in the State, the planters selling from $200 to $250 from an acre. Our correspondent in this county says: "When the land is well manured and cultivated it yields from forty to sixty bushels of corn per acre, from one hundred to three hundred bushels of potatoes, fifteen to twenty bushels of wheat, thirty to fifty bushels of oats, and from one and one-half to three tons of hay to the acre, but the average is much below these figures." The corn crop is made a specialty in Baltimore county, the aggregate yield of 1860 being over one million bushels, and the crop of 1867 about 1,240,000 bushels. The grain is taken to Baltimore and much of it exported, this disposition of the crop being considered more remunerative than feeding it to stock. Large profits are derived from this crop, the soil being well adapted to its growth. Mode of culture: the ground is ploughed either in the fall or spring, and put in good order, the rows laid off two ways, about three and one-half feet apart, and the corn worked well both ways. Planting begins about the 1st of May. It is usual to thin out the stalks and leave but two to the hill."

From Queen Anne county our reporter writes: "Our principal crops are corn, wheat, and fruit. I have been in this county since 1851, and I can safely say that, by the use of lime, phosphates, and guano, with clover rotations, the grain crop has been more than doubled, while the growth of fruit, which has originated only within the last six or eight years, promises, from its remarkable success, to be our principal pursuit. With existing and prospective railroad facilities our peaches will be in the New York market the day after they are picked. Well-improved lands yield from forty to sixty bushels of corn to the acre, and it is our most profitable grain crop. Of wheat twenty bushels in fallow with clover lea, and twelve on corn ground, drilled in with superphosphate. Some of our stiffer lands will bring more wheat, but are not so well adapted to corn or fruit."

In Anne Arundel county fruit and market gardening, especially strawberries, command much attention, the latter crop having been increased ten-fold in as many years, and nearly doubled in the last year, paying a net profit of from $100 to $400 per acre.

Tobacco is considered the most profitable crop in St. Mary's county, though wheat and corn are largely cultivated. The production of wheat appears to be declining, and failures are frequent with the more careless farmers. Our reporter adds, however, that his neighbor, "one of the best farmers in the county, who ploughs deep and manures well, is uniformly successful, having had but one failure in ten or twelve years, a circumstance which ought to modify the general practice hereabouts."

5. Winter wheat alone is cultivated in Maryland, of which the varieties sown are numerous, including red and white Mediterranean, Tappahannock, German Black, or Lancaster, Blue Stem, Purple Stem, Columbia, Walker, White Flint, Red Chaff, &c., but the red Mediterranean is generally preferred for its hardiness, early ripening, and resistance to midge, rust, and other diseases. In Washington county the "Lancaster" improvement on the Mediterranean is now in high favor and largely sown; but a change of seed is found necessary every few years, to insure success. The Tappahannock and Mediterranean are sown in Montgomery, the latter yielding more, but the former commanding higher price. In most of the other counties reporting the red Mediterranean is almost exclusively sown, as the surest and most profitable variety, a number of the other kinds grown having become unreliable.

The seed is sown in the different sections of the State from the middle of September to the middle of October, and the crop harvested the latter part of June and the first week in July. It is estimated that about two-thirds of the

acreage is drilled, the broadcast system being generally superseded. The mode and amount of culture vary in the different counties.

In Washington, clover fallow is preferred for wheat. The ground is prepared by ploughing with a three-horse plough, thorough harrowing, and seeding with drill, 1¾ bushels to the acre. Montgomery gives the average yield at about 12 bushels. Our Baltimore correspondent writes: "The amount of wheat cultivated is yearly on the increase, the crop of 1867 probably aggregating 320,000 bushels. A much better system prevails at present in the mode of culture—more manures are used, and the drill is of great importance. In some localities the drill is used altogether." In Cecil "wheat is mostly sown in oat stubble, after one or two ploughings, manured with ground bones, guano, or superphosphate of lime, and as much barnyard manure as is available." In Kent, "clover sod, turned down early in the fall, is drilled in, and wheat and oat stubble flushed and drilled, with guano and concentrated fertilizers; corn, ground, broadcast and ploughed in or drilled in, without other preparation." In Queen Anne, "for fallow we plough down a clover lea, harrow, and roll until the ground is in order, and then seed with drill from 1½ to 1¾ bushels per acre."

6. In the western part of Alleghany "natural prairie grass abounds; the pastures are usually timothy, blue grass, and clover." In Washington, "grasses are rich in fattening qualities; clover, lucerne, and orchard grass flourish; two to three tons of timothy may be raised to the acre." "Clover, timothy, and herd-grass or red-top form the pastures in Montgomery, but unless a rotation of crops is practiced, or the fields top-dressed, briers, sedge, and the ox-eye daisy or Richardson pink obtain possession; blue-grass is found in some pastures where the soil is good." Baltimore county "is not well supplied with natural grasses of good quality; in some localities red-top and blue-grass abound, and in many sections inferior grasses, called wild grasses, are found." Grass seeds are generally sown in Harford, but "green grass" and clover come spontaneously. White clover, green grass, and herds-grass are found in Cecil, and on low lands along the streams, a variety of meadow grasses; lands lying out are occupied by a coarse kind of grass called sedge. Clover and timothy are almost exclusively cultivated. Our Queen Anne reporter writes: "On well-improved lands patches of blue-grass root out the clover, and if let alone would soon take entire possession of the field, but is eradicated by a corn crop. Our meadow lands naturally produce red-top, wild oats, and a variety of coarse but succulent grasses, of which I do not know the names. Our worn-out lands grow up in sedge, which supplies good early pasture." Our reporter in Anne Arundel county says, "natural grasses are almost unknown here; crab grass and woolly head clover often grow, but are not adequate for pasturage. The soil is well adapted to clover and timothy, producing heavy crops when improved."

Reports from the several counties estimate the average length of the pasturage season at about seven months, at an expense of from $1 50 to $3 per month; Montgomery, six to six and a half months, at $1 50 per month; Baltimore is returned as low as four and a half months, at about $1 50 per month; Cecil, six and a half months, at $2; Kent, seven months, at $3; St. Mary's, Anne Arundel, and Queen Anne, report as high as eight months. From the latter our correspondent writes: "Where a farmer has plenty of wood-land, meadow, and old field pasture, it costs him nothing to raise cattle, as they are not put upon clover until a crop has been cut off or it begins to fall, and they are wintered on coarse provender which they convert into manure."

7. The soil and climate of Maryland are well adapted to the cultivation of fruits, and their growth is becoming an important interest in sections adjacent to the city markets, or in railroad communication therewith. Washington and Alleghany counties are considered especially adapted to the production of apples, peaches, &c., but as yet the culture has received comparatively little attention in the western part of the State. In Montgomery, both apples and peaches

yield well, and from proximity to Washington markets return large profits to the producer. Our correspondent writes that from one peach orchard $1,000 was realized in one season, and from an apple orchard of four acres $800 worth of fruit was sold in one year.

In Baltimore county the apple crop is the principal fruit crop, and the most profitable; the peach is also remunerative, but not reliable. The Baltimore markets present great inducements to fruit-growers. Grape culture is attracting attention in this county, and it is claimed that its success has been satisfactorily demonstrated. Harford county reports unfavorably in reference to large fruits, but success in berry culture. Cecil—"Apples do not yield well; pears do better. Peaches are raised in large quantities in the southern part of the county, but they are subject to failure from unfavorable weather changes. A full crop is valuable, however. A neighbor realized $1,000 from about eight acres. Small fruits are beginning to be raised for market." In Kent county most fruits adapted to the latitude do well; peach trees averaging $5 per tree, and apples $10. This has been a great peach district for ten or twelve years.

From Talbot county our reporter writes: "The capabilities of this county for fruit-growing are great, particularly for the grape, which is found all over our woods ascending the tallest trees. Little attention has been paid to fruit culture, but from the location of our county, with prospect of early direct communication with Baltimore, Philadelphia, and New York, strong inducements are held out to fruit growers." Our Queen Anne reporter says: "No soil or climate is better adapted to fruit, and for three or four years previous to the last one, peach growers averaged a clear profit of $100 per acre on their fruit. The crop last season was much injured by rot, caused by excessive wet weather. Pears are proving even more valuable than peaches, and many orchards of standard trees have been planted. Those who have tried dwarf pears have partially failed, because they planted too many varieties. Only the Louis Bonne de Jersey and Duchess d'Angouleme have succeeded well; but these have yielded enormous profits. Of the standard, the Bartlett is worth all the rest. Apples have not been so profitable. Our old winter varieties seem to have run out, while the northern winter apples ripen here in the fall. Summer and fall varieties bear abundantly, and when the railroad gives us a market in Philadelphia and New York I think we shall find them profitable. A new fall apple from Pennsylvania, called the Smoke House, proves a great bearer and very superior fruit with us."

VIRGINIA.

1. Two-thirds of the counties report a decrease in the value of land since 1860, ranging from ten to sixty per cent., and averaging thirty-five; the remainder, with two or three exceptions, make the present price in currency no greater than the valuation in 1860. An average decrease for the entire State may be placed at twenty-seven per cent. This makes the depreciation, in comparison with the date of the last census, about the same percentage as the appreciation which was reported in New York—that is, property worth $100 in 1860 is now valued at $73 in Virginia, and $128 in New York. Yet this reduction is more apparent than real; at least it is not permanent, and is far less marked to-day than it was a year ago. Very few sales were made at prevailing prices; yet such has been the dearth of money, and almost everything except land, that more frequent sales—apparent sacrifices—would have been better for the people. Those who are able to hold their land, and many who are not, refuse to sell at less than former prices; still there are thousands of farms or uncultivated tracts of land that can now be bought for less than their intrinsic worth; and there are opportunities, at forced sales or under stress of immediate want, to obtain valuable

property for a trifling consideration. In a portion of Loudon, especially the Potomac and Loudon valley, and Clarke county, adjoining, prices are already higher, in consequence of northern immigration, than in 1860; and such will be the result throughout the State when farms are subdivided and occupied by an enterprising people.

The causes of depreciation assigned are numerous: first of all is the want of labor which is universally noticed; the lack of capital; the large amount of land offered for sale to reduce the size of farms; State enactments forbidding a higher rate of interest than six per cent., tending to drive capital to cities and out of the State; the stay law; neglect of agriculture; and, finally, reconstruction not in accordance with the judgment or prejudices of reporters. In many sections there is a prevalent disposition to sell all surplus area of farms above 100 to 200 acres.

Advance in price is noticed in many counties. In Middlesex, on the Rappahannock, land that could have been purchased two years ago for $10 will now command $30. In Pulaski, in the southwest part of the State, while the decline, as shown by the few sales made, is sixty per cent., holders generally are not disposed to sell at less than former rates. This is the fact to a great extent throughout the State, and it gives a wide range to prices, and makes an estimate of an average a very difficult undertaking. The prices are made by the necessities of the sellers.

In 1860 a portion of the Shenandoah valley, a part of the eastern slope of the Blue Ridge, the James river region, and some other sections, were cultivated, improved, highly valued and prosperous. Jefferson county averaged $52 per acre, by the official assessment, and probably $80 by real valuation, while the average assesed value of Ohio farms was but $26. Loudon, with 220,266 acres improved and 75,876 unimproved, was valued at $10,508,211. Mountainous sections, the upper portion of the valley of Virginia, the tide-water region, and the western slopes of the Alleghanies, were less valuable, ranging from $5 to $30, and much higher with valuable improvements, according to location and all the various circumstances which usually affect prices. Farms at $100 per acre, and even $150, were often purchased, and the same prices will soon be reached when losses of population and property have been repaired.

2. Such has been the waste of war that "unimproved" lands have encroached upon cultivated areas until nearly all the State is "wild" land. The tracts in original forest, or thrown out of cultivation and covered with new forest growths, will be included in this branch of the subject. In Patrick and other southwestern counties the price is quoted at $1; in Carroll, fifty cents; in Nelson, twenty-five cents; in Botetourt, $1 to $3; in Tazewell, $2 50; in Highland, $2 75; in Clarke, $3 to $6; in Washington, $2 to $3; in Buckingham, $2 to $5; in King George, $4 to $10; in Stafford, King William, Norfolk and Craig, $5; in York and Middlesex, $6; in Lancaster, $5 to $25; in Smyth, $10 to $25. This shows the range of reports. In the tidewater counties prices range from $5 to $15 for wild lands, except on navigable water, where the value depends on the amount of wood and timber, sometimes reaching $50.

Lands at $1 per acre in Patrick are reported "mountainous, heavily timbered, and highly productive." Coal lands, four miles from the railroad, in Montgomery, can be bought for $3 to $5 per acre, and for $1 to $2 ten miles from the railroad. Mines of great intrinsic value in several counties in this part of the State, are unworked and unopened for want of capital, enterprise and knowledge of the business of mining. In Wythe wild lands are "almost valueless except in the neighborhood of iron works," one of a class of facts everywhere appearing in Virginia, which illustrate the creation of values in all of a group of products by utilizing one of them. In Tazewell are tracts of thousands of acres, some of them at lower prices than government lands. On these mountain slopes and in valleys the pasturage is unsurpassed in the country, and much

of it is excellent land for tobacco, grapes, and fruit. Among the mountains are also rough and rocky areas, of little value, except for minerals, in which this county is peculiarly rich. The reporter says of its soil and timber growth: "The greatest source of wealth in this county is from blue-grass. Large portions are used entirely for grazing purposes, as after the timber is deadened and cleared of the undergrowth, the blue-grass springs up at once without sowing or breaking the surface of the soil. It becomes better by use, and if not too closely pastured soon forms a sod that nothing but the stoutest team and most improved plough can break. Formerly a large quantity of sugar was manufactured from the sugar maple. This from various causes has declined, the two principal reasons being the destruction of the trees, and the labor devoted to its manufacture having to be performed in the early portion of the spring, that should be devoted to preparing for the summer crops. The sugar maple is fast disappearing. Formerly it predominated. It is the best indication of blue-grass, to which it is rapidly giving way, and is now only found, to any extent, on steep mountain sides, or in groves specially reserved and called "sugar orchards." We have the usual variety of the oaks indigenous to this climate. White and black walnut, chestnut, buckeye, beach, &c., in their proper locations. Timber is only valuable for building and fencing purposes, as there is no transportation for sending it to market." In King William, on the Pamunkey and Mattapony, are lands subject to overflow, obtainable at $5 per acre, "consisting of both forests heavily timbered and high woody flats, having the most luxuriant vegetation, and furnishing the finest pasturage for cattle and hogs. As the greater portion of this land is alluvial, rich, loamy soil, its capabilities would be very great if made available by dykes and canals, which would be easily practicable."

The wild lands of the Blue Ridge are exceedingly desirable, from their climate, soil and location, with reference to markets. They can now be obtained for one-fourth to one-half the price of improved farms. The growths are oaks of several varieties, chestnut, hickory, dogwood, poplar, &c.

A fair indication of the quality of the tide-water lands may be obtained from the following concerning King George county: "A large proportion is of good quality, covered with a good growth of oak, hickory, locust, cedar, pine, &c. Where underlaid with marl, as in the western section, though hilly, it is fertile, easily tilled, and produces finely natural and cultivated grasses. The same, to a less degree, may be said of the unimproved lands in other parts of the county. All are susceptible of high improvement by the use of marl, lime, clover, plaster," &c. Of wild lands in Amelia, held at a nominal price, it is said: "Their capabilities for improvement are excellent, and at small cost they might be made to produce corn, wheat, oats, and tobacco. To get them in the road to self-improvement requires the capital to purchase grass-seed, and 250 pounds of guano to the acre, to start this vegetation, to make them self-sustaining, and improve the land, by green manuring, to a high degree of productiveness." In Buckingham: "There are large bodies of wild or uncultivated lands, varying in price from two to five dollars per acre, according to their proximity to market facilities. These lands lie well, and abound in oak and pine timber, and are well watered by small streams. The soil is generally gray, soft, and lively, and, when cleared and brought into cultivation, is susceptible of the highest improvement, producing all the crops common to this latitude."

3. The wood and timber of Virginia cover a large portion of her area. Much of the eastern and central forests have been culled, and large areas of arable land have grown up in pine and other growths; yet there still remains, even on the navigable waters, which are estimated to have a coast line of fifteen hundred miles, a large amount of timber suitable for ship-building, cooperage, and various manufacturing purposes. On the Blue Ridge, within a few miles of the Orange and Alexandria railroad, are some forests of original growth, which are never utilized, but deadened, and left to decay, when the soil is wanted

for the purposes of agriculture. They are too far from the road to pay for hauling; but for manufacture upon the spot, into a thousand useful forms of domestic or farm utensils, they would prove a source of wealth. In Middlesex: "The Dragon swamp, which divides this from Gloucester county, is a vast belt of cypress timber, extending nearly thirty miles, with an average width of one-half mile. Very little effort has been made for the development of this vast source of wealth. At the head of navigable water, no enterprise offers a better investment for capital."

It is scarcely necessary to refer to the mineral wealth of Virginia. To mention even the names of the counties, in connection with the several minerals discovered within their boundaries, would occupy the allotted space. The whole valley of Virginia, for instance, is full of iron, various ores of which are so common that they have been used for making walls instead of fencing. From Botetourt, through Roanoke, Montgomery, Pulaski, Wythe, Smyth, Carroll, and Washington, to the southwest corner of the State, iron, of fine quality, is found in great abundance. It has been practically and successfully tested, for many years, at a few points. Several furnaces are now in operation in Wythe and other counties, and more are in contemplation. In Pulaski is found "iron-ore in great abundance of the finest quality. There has been, until recently, no effort to develope it. A company from Pennsylvania have purchased several tracts, and are now building houses, with a view to commencing operations in the spring. They have purchased very low, and I have understood the property, if located in Pennsylvania, would command several millions." Since the war, a company from Connecticut has purchased a property in Carroll, and have erected a smelting furnace costing some $100,000, and will shortly commence working it. They have raised a large amount of ore, said to be very rich.

The Bath furnace property, in the Shenandoah valley, with several thousand acres of wood-lands in the vicinity, is offered, under compulsory circumstances, for a short time, at a price nearly nominal; and there are other iron-bearing tracts of, perhaps, equal cheapness. But this condition of things is now rapidly disappearing, and prices are advancing as the pressure of adverse circumstances is removed.

Gold is found in Stafford and other counties, and has been worked to advantage at various points. Copper is seen in the mountains of the Blue Ridge, and is abundant in the upper portion of the valley of Virginia, and is mentioned particularly in Louisa and Smyth. Coal is found in all the southwestern counties. In Pulaski, as is claimed, the coal beds underlie 100,000 acres. Lead has been discovered in Wythe, Smyth, and other counties; zinc in the same counties; and plumbago in Smyth. Salt is abundant in Washington, Smyth, and other southwestern counties. Barytes is reported in Smyth and Montgomery. Gypsum, slate, marls, ochres, kaolin, pipe and fine clay, limestone, and serpentine, are very abundant in many sections. The minerals of Virginia will soon be a source of wealth to individuals and the nation.

4. There are few specialties in Virginia agriculture, except tobacco and wheat, and stock growing in mountainous regions. The scarcity of money, and despondency, caused either by defeat in the late war, or from losses sustained in it, have operated to depress enterprise. A correspondent expresses the general feeling thus: "There is not energy enough among our farmers or laboring classes to make a specialty of anything, except to get bacon and corn-dodgers enough to drive starvation from their doors. Stock is about the only resource upon which we depend for what little money we require. Farms are large, averaging from 500 to 3,000 acres, and we hold on to them with a death grip, as if our interest in Heaven depended upon our broad acres, and will not cultivate it ourselves nor allow others to do so." This is the case, to some extent; yet the evidence is abundant of a growing disposition to sell, to invite immigra-

tion, to welcome business men and farmers, and even to take hold with energy, and push new enterprises to success. Wheat, dry and heavy, yielding superior flour, may be considered a specialty in the Shenandoah valley, and in many of the central and eastern counties. Corn, for cattle feeding, has been produced largely on the north branch of the Potomac, in the valley of Virginia, and it has been a prominent crop in Norfolk, Gloucester, York, and Lancaster, on tide-water. Our correspondent on York river illustrates the capabilities of this coast region as follows: "One hundred and ten bushels of corn, forty of wheat, and sixty-four of oats, have been made to the acre. The oats were grown and harvested by myself, on light black land, never manured, and was the second crop of small grain, and the sixth of its cultivation. The other two parcels of land, on which the corn and wheat grew, were heavily manured. The profit was large in each case."

5. Expressions of preference for Tappahannock wheat are received from Greene, Washington, Wythe, Craig, Louisa, and Clarke. The Lancaster is preferred in Loudon, Botetourt, and Highland; the Oregon, because of its white, plump grain, in Lancaster; the Walker white in Scott, and, until recently, in Wythe, where it was introduced thirty years ago from Tennessee, and became very popular; the red-chaff Mediterranean in Montgomery, and the Mediterranean varieties in several other counties.

The time of sowing has a wide range; generally through September, and a part or the whole of October, and on the sea-coast to December first. In Pulaski county, the range is through October and November; in Carroll, from August 15th to November 1st. The commencement of sowing, in most of the counties, is during the latter half of September; and the close, upon an average, is from October 15th to 20th. The average for the date of commencing the harvest is June 21st, for the tide-water region, and June 25th for the whole State. The harvest, in most localities, is continued to July, but rarely extends beyond the first week, though sometimes continuing to July 10th, and, in some cases, to July 15th. Late sowing is often practiced to suit the time of corn-ripening, the corn being cut and the wheat harrowed in. In Wythe, the first half of September is preferred for sowing, "as the wheat gets a better root, is not so liable to be winter-killed, or to rust the next year." In Clarke, "either the Lancaster or Mediterranean, sown upon a dry soil, and drought prevailing, with warm weather, are liable to destruction by the fly; but, if sown upon a damp soil, in moist weather, escape the ravages of the fly." The modes of culture are various, and, like those of other parts of the country, generally careless and imperfect. In most of the counties a very small portion is drilled. In a few "valley counties" the drill is considerably used. In Craig it is common to turn over sod-land with a two-horse plough, then put in wheat with a shovel-plough, or harrow, and sometimes both;" and, in corn-land, to sow *while the corn is standing*. In Lancaster county, "many farmers cut off the corn, and sow upon the same land, but the greater number, and the best farmers, sow upon fallow." In Greene it is put in with the single and double-shovel plough, the harrow, or double-cultivator.

6. Blue-grass, white clover, crab-grass, and red-top, everywhere abound for the pasturage of cattle. The average length of the season for exclusive feeding is nearly eight months, and in mild seasons, in some localities, cattle obtain a subsistence without feeding throughout the year. Provision should be made, however, as it will be by good farmers, for a partial supply for four months or more. Far less hay or other feeding material is required, during this period, than for the same months in more northern latitudes. The price of pasturage varies greatly, ranging from $3 to $16 for the season, according to location and other circumstances. The average is less than a dollar per month. It is high in the neighborhood of Winchester, where lands are high, and grazing is not the principal business; and low on the mountain slopes of the Blue Ridge and the Allegha-

nies. The winter grazing is often good where the summer grass is not pastured till late in the fall. The following statement of the value of Virginia for grazing is entirely reliable: "The advantages of the valley and mountain glades of Virginia for stock-rearing are remarkable. The census proves that many a county, with large herds, has averaged less than a hundred-weight of hay to each head of cattle! Winter feeding is required but for half the period necessary in New England and New York, and less food suffices during that time, by reason of the mildness of the climate. Beef or mutton can be produced at less than half the cost of northern-grown meat, and cheese made at a saving which would more than double northern profits. Already have cheese factories been started, with flattering success. In a recent address before the Border Agricultural Society of Virginia and North Carolina, F. G. Ruffin says he has made, the present year, 180 per cent. profit on a flock of 200 sheep. Fortunes await enterprises in every branch of stock production."

7. Reports from every county, without exception, are extremely favorable as to capabilities for fruit of nearly all kinds known in the temperate zone. Apples, pears, peaches, plums, apricots, and small fruits of all sorts, grow well in nearly all parts of the State. The only general exception, as to profitable yield, is the plum, which is destroyed by the curculio, as elsewhere. In a few localities in the upper part of "the valley," frost is mentioned as an occasional drawback in peach cultivation. Pears are generally of vigorous growth and productive habit. With few exceptions, in localities near Washington, Richmond, and Norfolk, fruit-growing has never been engaged in as a business; and the fruit-trees upon farms, which have in many cases been numerous and in great variety, have rarely been cultivated or cared for, and seldom has the fruit been marketed, except when dried or distilled. There is a general disposition now prevalent to utilize and extend the production, as one of the surest and most speedy means of increasing the wealth and prosperity of the State. A correspondent in Clarke county says: "The soil of the valley of Virginia, throughout its whole extent, is admirably adapted to the growth of the apple and pear, but more especially the apple; the tree grows large and bears abundantly. The apple has not been cultivated heretofore with a view to market, but I think will be hereafter. The truth is that apple-orchards have not been considered property. The peach is a very uncertain fruit, rarely producing remunerative crops oftener than once in three or four years, the trees not living more than seven or eight years. When the season is favorable, they grow abundantly. Improved plums are largely cultivated, but scarcely ever produce a crop. Cherries are grown considerably, and are a very certain crop. The strawberry, raspberry, and blackberry are produced in great abundance, the latter two growing wild in every uncultivated piece of ground. Grapes are only grown as garden fruit, and not in regular vineyards; they are very certain to bear. The apple crop in this county was very large this year, and was sold for fifty cents per bushel, and sent to Baltimore." The average yield of a well-cultivated, full-grown apple tree, in Loudon county, is placed at eight bushels. Large quantities of apple-butter and apple-brandy are reported from Craig. In Scott, "peaches and apples have almost been the staple of the county." Botetourt "is capable of producing, and does produce, vast quantities of fruit, in great perfection, and can be made, with proper culture, one of the finest fruit-growing counties on the continent." In Montgomery, the reporter says, are lands at a very low price, that would yield great profits in grape culture, or any variety of fruit production. There are similar lands in almost every county in the State. The slopes of the Blue Ridge afford not only a suitable aspect, in a very favorable climate, for development of rich grape juices, but soils admirably adapted, in geological composition, texture, and drainage facilities, for vineyards, especially with reference to the production of wine. Eminent pomologists are persuaded that the Blue Ridge, from Virginia

south, is the region for wine production east of the Alleghanies. Its capabilities have been fully tested. Its soil is various, but productive, and easily improved. Much of it is of a reddish color, overlying a deep red, tenacious, clayey subsoil, susceptible of the highest improvement. There is a vineyard near the summit of the Blue Ridge which produced last season 6,000 gallons of wine, and 4,000 gallons of brandy. A farmer, in another location, from the wild grapes picked from his own acres, made 7,000 gallons of brandy, during one of the years of the late war. In Nelson, our correspondent says, "the soil is rich, and judging from the size and quantity of the wild grape-vines indigenous to our soil, is well adapted to grape culture. We have no vineyards, but the wild grape grows spontaneously, in our fields and forests, to a large size, climbing to the tops of the tallest timber."

Eastern Virginia offers superior inducements for fruit-growing, not only in soil and climate, but particularly in facilities for freighting to northern markets by water. Numerous instances of profit might be noted. A lady near Norfolk received ten thousand dollars last season from thirty acres of pears. A gentleman in the same locality sold apples from an orchard of eighteen acres for three thousand dollars; and in Princess Anne county, an orchard set out three years yielded four hundred and four dollars. Northern fruit-growers have already commenced operations upon these promising fruit lands in different sections of the State.

NORTH CAROLINA.

1. Reports from forty-one counties represent a very general decrease in values of real estate. Madison and McDowell report no decrease from prices of 1860, while the latter shows an actual increase on those of 1866. Onslow reports no decrease on well-improved farms, but all others estimate a decline varying from five to seventy-five per cent., and even more, especially at forced sales. As a general rule small and improved farms have decreased less than large and neglected ones. The general average may be fairly rated at about fifty per cent. The causes are variously stated, as war, change in system of labor, scarcity of money, unsettled state of public affairs, and the unrest of doubts regarding the future.

2. Wild or unimproved lands are reported in three general classes: first, lands exhausted, abandoned, and grown up to bushes; second, virgin uplands, generally well timbered; and third, low or swamp lands, ("pocosin,") often well timbered. The first, once fertile, can again be restored in time, and by good management; the second generally requires only clearing and tillage; and the third needs drainage in addition. The second and third can be had at prices varying from fifty cents to ten dollars per acre; the first at even lower rates. Pitch and turpentine lands abound in Duplin, Lincoln, Cabarras, Hertford, Sampson, Onslow, and Moore counties, and can be had for from two dollars to five dollars, according to quality and facilities for working and marketing.

"Pocosin" or swamp lands are reported in quantities in Duplin, Onslow, and a few other counties; in the latter, one body of "white-oak pocosin" of sixty thousand acres, extending into several adjacent counties, and other tracts nearly as large, requiring combined capital to drain. Another says of these, "the prices are from two dollars to three dollars per acre, and clearing and draining will cost as much more. They are among the most fertile lands when brought into cultivation." Macon county has thousands of acres at State price, (twelve and a half cents per acre,) large tracts of which are held by speculators at higher rates. Wilkes reports ridge or rolling lands with branch bottoms, one hundred acre farms one-fourth cleared, cabin, running water, plenty of wood, at two dollars per acre; mountain lands well wooded, generally fertile, and water-power too abundant to be appreciated, at one dollar per acre; Camden county virgin for-

est five dollars, and virgin swamp one dollar per acre; Jackson county mountain lands, rich and loose in quality, much of it stony, averages fifty cents per acre; Caldwell county, all timbered and water power abundant, level lands one dollar and mountain fifty cents per acre; Bertis county is three-fourths timbered upland, formerly held at five dollars—bottom lands higher in price. Lands generally of good quality and capable of high improvement in Duplin, Bertis, Halifax, Hertford, Onslow, Wilkes, Wilson, Macon, and Davie counties offered low; greater part of these suitable for cereals and vegetables, fruits of various kinds—some for cotton and tobacco, and a small part for rice.

3. Among the resources that could easily be made available and profitable in prosperous times, and with a few facilities in marketing, are yellow and pitch pine in abundance, formerly profitable for turpentine and lumber, in Duplin, Onslow, Wake, and other counties; timber of various kinds suitable for building, furniture, &c., in Bertis, Anson, Hertford, Onslow, Sampson, Iredell, Madison, Henderson, Montgomery, Moore, Stokes, and Burke counties; and agricultural resources in marketable products, with a good system of farming, in all except, perhaps, Northampton and Cumberland. Besides these, iron is manufactured in Chatham, Lincoln, and Gaston counties, and found in Randolph, Mecklenburg, Alleghany, Madison, Moore, Davie, and Guilford counties. Gold, silver, and copper are found in Davidson; gold in Stanley, Randolph, Cabarras (the centre of the gold region,) Lincoln, Anson, Mecklenburg, (which is rich also in zinc, sulphur, copperas, and blue vitriol,) Iredell, Rowan, Franklin, Gaston, Caldwell, Moore, McDowell, Rutherford, Guilford, and Burke; copper in Iredell, Rowan, Alleghany, Jackson and Guilford; bituminous coal in Chatham and Moore, and plumbago in Wake. In most of the counties, however, railroad or other facilities for marketing will be required to make these resources profitable, and at present, even in the best locations, capital, skill, and enterprise are needed.

4. Cotton has heretofore been a principal, and in many cases the only sale crop in Duplin, Bertis, Northampton, Halifax, Anson, Cabarras, Mecklenburg, Franklin, Wilson, and Wake counties; but the disturbances in labor and fall in price have rendered it precarious, if not utterly unprofitable. Wheat is a principal and generally profitable crop in Cabarras, Mecklenburg, Randolph, Camden, Polk, Gaston, Caldwell, Moore, Guilford, and Burke; and corn in Duplin, Randolph, Halifax, Onslow, Sampson, Camden, Polk, Gaston, Henderson, Caldwell, Moore, McDowell, Wake, Rutherford, Guilford and Burke. Tobacco is made a specialty in Franklin, Davie, and Person, and ground peas (or nuts) in Onslow. In nearly all the counties farming is reported at a low state in management and profits. Corn is the staple for bread in many counties. Halifax reports the yield on best lands—cotton four hundred to five hundred pounds lint; corn on uplands twenty to thirty, and on lowlands thirty to fifty bushels; but on common lands throughout the State the average is one hundred to three hundred pounds lint; twelve to twenty bushels of corn, five to ten bushels of wheat. Onslow reports ground nuts fifty to ninety bushels per acre, at $2 25 to $2 50 per bushel; and sweet potatoes fifty to sixty bushels, at $4 to $10 per barrel. Sampson reports that before the war, at its county fairs, prizes were awarded for one hundred bushels of corn and thirty bushels of wheat to the acre.

5. Drilling in grain crops is not practiced in the State, except a few experiments in two counties; and the general amount of wheat is sowed at the rate of one bushel to the acre, and lightly ploughed or harrowed in. The seed wheats preferred are the earliest and hardiest procurable, and are as follows: Purple straw (called a *white* wheat, while others speak of "rare ripe" as a synonym, and call it a *red* wheat, thus causing doubt and confusion) is preferred in Duplin, Davidson, Randolph, Chatham, Halifax, Franklin, and Montgomery; Mediterranean in Randolph and Stokes; white Baltimore (pronounced very good, but rather uncertain) in Stanley, Rowan, and Rutherford; blue stem in Wilkes, Franklin, Polk, Alleghany, and Burke; Walker in Madison, Alleghany, Jackson,

and Macon ; Johnson white in Halifax ; Orleans white in Anson ; early white and "Ruffin" in Camden ; red May in Mecklenburg ; and Clingman in Henderson. It is note-worthy that the early Tappahannock, distributed by this department, is superseding all or nearly all these varieties as fast as it becomes known, and is now preferred in Lincoln, Anson, Mecklenburg, Wilkes, Polk, Caldwell, Davie, Person, Watauga, and Burke, for its early ripening, freedom from disease and insects, good yield, and hardiness. Sowing is done from early in September to January, but generally in October and November. Harvesting is generally in June, sometimes extending into July. In one wheat-growing county the cradle is spoken of as lately superseding the reap hook, (sickle.)

6. Crab, wire, and sedge-grasses are the most common *natives*. Herds, meadows, blue, timothy, and water grasses, and the clovers are more or less common in most counties. *Lespedeza* (wild clover) in Lincoln county is rooting out the sedge and crab-grass. But few regular pastures or meadows are made. Most stock is turned into forest and mountain ranges in the spring, and remain there until after harvest, when it is put into the fields. On some of these ranges cattle grow fat. Regular pasturing costs from one dollar to two dollars per month ; in ranges, the expense of occasional attendance and salt is from one dollar to four dollars the season, which lasts from six to eight months, and winter foddering from three to four and a half months. Little or no stock is raised in Bertie, Northampton, Anson, and Stokes counties.

7. The long seasons mature northern winter apples too early for good keeping, but the fine Virginia and native winter varieties keep well. Only small quantities of fruits are raised in Northampton, Anson, Camden, Gaston, Moore, and Cumberland ; but if there was a demand, nearly all would be found well adapted to fruit raising. The other countries are well suited to this culture, and fruits of all kinds (except tropical) are easily cultivated and produce abundantly. In some counties the apple, in others the pear, and in yet others the peach are never failing. In many, the native grapes, especially the Scuppernong, produce abundantly, and are free from mildew and rot. In Wilson the Scuppernong yields from 20 to 25 barrels of juice per acre. In Chatham apples are profitable. In Polk one hundred apple trees yield one hundred gallons of brandy. In Alleghany apple trees average ten bushels each, at a profit of twenty cents per bushel. In Davie an acre of apple orchard is worth from $100 to $150 annually. In Onslow fruit raising is profitable and orchards on the increase. Wilkes is claimed to be the best county in the State for *good* apples and cherries. In Guilford orchards of good apples, peaches and cherries, are profitable, and in several others fruit raising could be, if facilities for marketing were afforded and proper attention given to the business. In Stanley pear blight is prevented by a free application of putrid urine to the roots at the beginning of winter, and stone fruit trees protected from the borer by applying the same remedy before and while the insect is at work.

SOUTH CAROLINA.

Returns represent the decrease of real estate to be from 25 to 80 per cent., making the average for the State about 60 per cent. The causes are variously stated : general indebtedness, scarcity of money, want of reliable laborers, great loss of capital in slaves, want of capital, unsettled condition of the country, general poverty of the people, fear of confiscation, and negro domination.

2. Union district reports none but worn-out lands, worth little ; Chester, the same, but on trap formation, and can therefore be easily reclaimed by deep ploughing, while the wooded lands are well timbered. In Spartanburg woodland is seldom sold, except as part of cultivated farms, and then at four to five dollars per acre. The uplands are thin in soil ; the gray—standing drought—is best for cotton, and the reddish for wheat. Georgetown has pine lands, for poor, coarse pasture, at 50 cents to $1 ; such as lie near water carriage are worth $1 50

to $2 for turpentine and lumber. Few sales are reported in Pickens; asking price from 10 cents to $5 for lands that will yield ten to twenty bushels of corn and four to ten of oats, rye, or wheat. Abbeville unimproved lands are generally poor ridges and abandoned lands, at $2 per acre; Sumter, light sandy, with clay subsoil, at 50 cents per acre, which, if covered with pine, are valuable for turpentine; Richland, from $1 to $5; much is valuable only for timber; the oak and hickory lands will yield 500 to 1,000 pounds cotton, 10 to 20 bushels corn, and 8 to 12 bushels wheat; in York county, King's mountain lands, fit only for coaling and iron working, are now being operated by two iron companies. Marion has much virgin land, valuable for farming, adapted to cotton, corn, rice, &c.; heavy pine forests scarcely touched, valuable for naval stores: and swamp lands for oak and cypress lumber—average price, $2. Barnwell reports rich alluvial swamp lands on water-courses, expensive to clear and drain, heavily timbered with sycamore, cypress, poplar, short-leaf pine, &c., and cane-brakes, affording rich pasturage the year round. The oak and hickory lands are less rich, but easier cleared. Pine lands and barrens, kept for "ranges," are too poor to cultivate; average price, $2 per acre. Lands rated at 6 bushels corn per acre can easily be made to produce much more by a good cultivator, as 600 bushels sweet potatoes have been produced on such lands by manuring and good tillage. Barnwell district, it is claimed, is peculiarly adapted to produce silks, wines, and fruits, and has railroad and water communication to all parts of the State. Iron of superior quality, in great abundance, is found in Spartanburg, but only used for plantation purposes; ore is reported in Abbeville. Gold is found in Spartanburg, in Pickens, (where a company is now successfully at work, near Walhalla,) in Abbeville, (where "Horn's gold mine," discovered in 1834, has already yielded $1,000,000, and is still worked with profit;) and in York some mines have lately been sold to northern capitalists, including some California miners. Lead, also, is found in Spartanburg, copper and silver in Pickens, very pure ochre in Abbeville, and immense beds of kaolin and superior buhrstone. Marl in Barnwell contains a large percentage of lime. This district has had several manufactories of cotton, paper, &c., in profitable operation, and some are yet running successfully.

4. Cotton is the only special or market crop in Spartanburg, Union, Abbeville, Sumter, Richland, York, (southern part,) Chester, and Marion, and raised also as one among others, in Barnwell. All testify that at present it is profitless, and in most cases a losing crop. Rice has been the special crop in Georgetown, but only about one-tenth (5000 tierces) of the former amount is now raised. Corn and wheat are grown in Spartanburg as a principal crop; also, rye, oats, and common and sweet potatoes for home consumption; the same is true of Abbeville and Chester. In Barnwell the Irish potato has been grown, with no manuring and little cultivation except mulching, at the rate of 400 bushels per acre. In the same garden, out of 700 cabbages, 500 bore large heads, some of the early York 42 inches in diameter, and other vegetables of proportionate size, all showing that the soil only needs better culture to produce abundantly. As the season is from four to six weeks earlier than in New Jersey, market gardening for northern markets would be profitable as fruit growing in the latter State. The only implement for cultivation in Union district is the common one-horse plough, and there is no machinery for harvesting crops. The yield of farm lands is generally 300 to 1,000 pounds seed cotton, 8 to 50 bushels corn, 20 to 40 bushels rice, 4 to 15 of rye, and 10 to 20 of oats. Of course better implements, thorough tillage, and good use of marl and other materials and manure, would greatly increase these products.

5. In Spartanburg, Pickens, Abbeville, and Chester, red wheat, (also called Hunter and Alabama) is preferred; in Union, Chester, and Marion, the red May, (also called "Orleans;") in York, the red Mediterranean for poor, and red May for good lands. In Sumter and Richland, also, red wheats are preferred.

In Georgetown no wheat is grown. Among white wheats, Walker, King, Baltimore, Virginia white, Big white, are named, but red wheats are generally preferred as hardiest and earliest, and therefore escaping rust. The Tappahannock is preferred to all kinds where known. Time of sowing is generally October and November, but varies from the first of September into January, and harvesting generally early in June, but varies from the middle of May to July. The usual mode is to sow broadcast from one to four pecks on unploughed corn ground, covering with a shovel-plough; sometimes the harrow and roller follow; nature does the rest, and a poor crop is the result. Mr. William Robinson, of Fairfield district, raised 113½ bushels wheat on two acres by ploughing "red mulatto" land one foot deep and manuring well. Harvesting is done with the reap-hook or hand-cradle. Not three per cent. of the grain is drilled—nearly all broadcast.

6. Broom sedge and crab grass are the principal native grasses reported, to which Abbeville, York, Chester, and Spartanburg now add *Lespedeza striata*, variously termed Southern, Japan, and wild clover. All unite in testifying to the good qualities of the latter as a pasture, it supplanting sedge and Bermuda grass, and being easily exterminated by the plough and hoe. Fowls grow fat on its seed during winter. It will grow in pine thickets where nothing else will grow. It salivates horses in the fall like other clovers. The stalks and roots die out in winter, but it springs up from the seed early in the spring. In general only working cattle and milch cows receive feed from about April to October or November; they are turned out on abandoned lands and into the woods, where they live on shrubs and wild grasses until after harvest, when they are pastured in the grain fields. In canebrakes cattle do well all the year. In Georgetown the woods are burnt over to promote an early start of grass; after which, in February and March, many cattle die of starvation. Sumter reports, "farm animals cannot subsist on our pastures." No shelters are provided for cattle.

7. Winter apples do not flourish south of the Blue Ridge; all others, and fruits generally, do well when cultivated, but there is no market. In Union peaches fail about every third year; apples are surer. In Georgetown pears do well. The Scuppernong grape never rots, and figs flourish. In Pickens the Winter Sweet apple never fails, and the buff apple is highly valued. In Marion an acre of grapes yields 1,200 gallons wine, and will be worth $500 a year for many years. In Barnwell large orchards of peaches, raised for northern markets, have proved very profitable, and apples and pears can be made so. Near Aiken 300 to 500 acres of grapes flourish, rarely mildew or rot, and produce abundant fruit of fine flavor. Brandies were formerly distilled largely from cultivated and wild fruits, berries, haws, persimmons, &c., but since the war these manufactures receive less attention. There can be no doubt that fruit-raising could be made remunerative as market communications are opened, and the profits can be largely increased by proper care and management.

GEORGIA.

1. Returns to our circulars from about fifty counties of this State show an average decline of from fifty to sixty per cent. in the value of farm lands, as compared with the estimates under the census of 1860. No county reports an actual increase; but Union, Fulton and Charlton show no change in value since the date named. A few counties report a very large decline—from eighty to ninety per cent., but the major portion range from forty to sixty per cent. The depreciation of these lands is of course attributable to the same causes which have similarly affected all the southern States, and the estimated values are but nominal, sales being few at any price, except when forced.

2. In 1860, the lands classed under the head of wild or unimproved lands embraced about one-fourth the area of the whole State, the figures of that time

being: improved lands in farms, 8,062,758 acres; unimproved in farms, 18,587,732 acres; wild or waste areas (including waters, &c.) not in farms, 10,461,510 acres. It is probable that the proportion of cultivated lands is smaller now than in 1860; and the estimated values given by our correspondents range from twenty-five cents to fifteen dollars per acre, according to location and resources. In Union, Murray, Chattooga, Gordon, Polk, Campbell, Cherokee, Jefferson, Johnson, Greene, Morgan, Carroll, Heard, Taylor, Charlton, Schley, and Church, embracing all the range of temperature and varieties of soil in the State, these wild lands may be purchased at from twenty-five cents to one dollar per acre; while in Floyd, Cobb, Milton, Forsyth, Columbia, Warren, Hancock, Newton, Butler, Houston, Crawford, Stewart, and other counties, the average value ranges from one dollar and seventy-five cents to five dollars, generally averaging something over two dollars. In fact, throughout the State, in every county, such lands are to be found at merely nominal figures, and of such variety and extent as to supply any character of soil that may be desired. In many sections these lands are mountainous and covered with a heavy growth of timber, and the soil, when cleared and cultivated, capable of yielding good crops of corn, the small grains, potatoes, &c., and are well adapted to fruit-growing; while in others the lands are flat and swampy, of little value but for the timber; but the larger proportion comprise lands susceptible of high cultivation, and capable of growing remunerative crops.

3. There is probably no State or country of equal extent in which so great a variety of soil, climate, and products exist as in Georgia. In one section are produced oranges, lemons, bananas, and other tropical fruits; while the other extreme yields all the products of the northern States. One chief cause of this variety is doubtless the different elevation of the several sections. It is claimed that there is scarcely a plant of value to man, except coffee, that cannot be grown in this State, and but few minerals of use in the arts not found within its limits. The northwestern part of the State is mountainous, and the summer climate delightful and healthy. The northwestern portion is a blue limestone region; the river and valley lands are very fertile, and comparatively fresh, the valleys varying in width from one-fourth of a mile to two miles. Wheat, Indian corn, cotton, grass, &c., yield well; and it is claimed that with manuring and deep ploughing as much can be raised here as in any part of the Union. The climate is agreeable and healthy, except in the vicinity of sluggish creeks, where there is liability to chills and fever. Water-power is abundant, and bituminous coal of excellent quality is extracted near the Tennessee line; and iron ore, lime, cement, slate, and white marble abound.

There are no mountain ranges in middle Georgia, the surface being undulating. Large portions of this section were originally very rich, but they have been scourged by bad cultivation, and are now much worn and reduced. Manures act well upon these lands, as they are more easily restored than new lands are cleared. Most of middle Georgia is quite healthy, the winters mild and the summers warm, though not too hot for white labor. The rivers are bordered with bottom lands of great fertility, covered with valuable timber; but these are liable to overflow and have not been reclaimed, though protection is practicable. These bottom lands are frequently four or five miles wide, with a soil of great depth, and it is stated that there are probably more acres of rich, unreclaimed swamp lands in middle and southern Georgia than the whole kingdom of Holland, and when reclaimed will yield more than a bale of cotton to the acre. They will not now command more than $1 per acre. The timber on this vast extent of bottom land would probably more than pay the purchase, clearing, drainage, and embankment.

Southeastern Georgia comprises the flat pine region and the rice and sea islands on the coast. The pine land is very poor, and valuable only for range and timber. The rice and sea-island lands were valuable before the war, but

have depreciated greatly, as it is said they can be worked only by negroes, being too sickly for white men to live upon them. They can be converted into meadows of the finest quality, and will yield heavy crops of clover, timothy, &c., which find a ready market in the West Indies, netting more money than rice, and the crops can be gathered by white men before the sickly season sets in.

Southwestern Georgia is in the tertiary formation, resting on what is called bottom limestone, being the great cotton region of the State, and probably as good, if not the best, in the whole south. The land is quite level and easily worked. Our correspondent says: "A really thrifty farmer in southwestern Georgia need buy very little to eat or wear, as he can raise his own meat, corn, wheat, cotton, wool, sugar, rice, tea, potatoes, &c., &c. Before the war good plantations in this region commanded $20 to $30 per acre, but the average now falls below $5 per acre." Some portions of southwestern Georgia are healthful, while others are malarious, and white men especially are liable to disease.

As has been stated, Georgia is rich in a variety of minerals; gold, iron, copper, marble, slate, limestone, &c., abound in all sections of the State. Union, Cobb, Cherokee, Forsyth, Milton, Hall, Columbia, Carroll, Merriwether, Butts, Bibb, and other counties, report deposits of gold, in some cases very rich, and promising large returns under thorough and systematic development, of which little has yet been practiced for want of capital and enterprise. The mountain ranges are full of iron ore, and the white marble quarries of Cherokee and other counties are extensive, while the slate quarries of Polk county are attracting attention. Investments of northern capital are being made in mining operations, and with fair management must prove remunerative.

4. Wheat, corn and cotton are the leading products of the State, but the soil and climate are capable of producing a great variety of crops. Cotton culture has been superseded in many instances by crops of Indian corn and wheat, and the indications now favor continued change in that direction. The system of farming in Georgia has been ruinous to the lands; the course of cultivation having generally been to crop with cotton and corn, until the soil refused to produce paying returns of either, when it was rested with small grain. A few years of such cultivation completely exhausted the soil, when it was turned out to grow up in sedge, briars, &c. As a matter of course, such farming could yield little profit in the long run, and must be superseded by a more liberal system, if the planter is to be permanently prosperous. Union county grows a great deal of fruit for distillation, and before the revenue laws were enforced, this business brought more money into the county than all others combined. Our Jefferson county correspondent says: "Cotton has always been a specialty in our county, its production in times past having been so profitable that little attention was given to anything else. The average production is about two hundred pounds of ginned cotton to the acre, or about five bales to the hand; the hands making at the same time sufficient quantity of provisions for the next year. Farmers generally average about $300 to the hand." From Putnam, our correspondent writes: "Those who have planted the most cotton have lost the most heavily, while those who planted largely of corn, wheat and oats, have made some money. The culture of cotton requires labor from the 1st of January to the 25th of December, making it cost from $28 to $32 per acre, and yielding on an average $16 to $18 per acre, including tax; while the cultivation of corn requires only about six months, including gathering and housing, and yielding from $20 to $35 per acre. Wheat and oats require no cultivation, and there is no labor except the sowing, reaping and threshing required. The cost of sowing is about $1 50 per acre, and the yield is eight to ten bushels without manure, and fifteen to twenty bushels with manure; sometimes thirty bushels, in favorable seasons." The average yield of the several crops other than cotton, for the year 1866, were as follows: Indian corn, 6.2 bushels per acre; wheat, 4 bushels; rye, 4.8 bushels; oats, 10.7 bushels; bar-

ley, 8.2 bushels; potatoes, 62 bushels; tobacco, 625 pounds; hay. .9 of a ton per acre. Improved culture will of course greatly increase these figures, which in most items fall below the general average of the State in fair seasons.

5. As in most other States, there are a great many varieties of wheat sown in Georgia, some of them under local names not recognized elsewhere. But little spring wheat is sown, and that generally in the more elevated portions of the State. Red wheat, or what is locally known as the Walker wheat, and the white bearded, are the varieties usually cultivated, the red being generally preferred because less subject to rust. In Gorden county the blue straw and white rust-proof (Gale) are sown; in other counties white flint, Tulman white, Johnston's white, Orleans, Tappahannock, golden chaff, purple straw, red May, &c., are grown to some extent. The seed is sown or drilled from the last of September on to the middle or last of December, and the crop is generally harvested from the 1st of May to the middle of June. Comparatively little of the seed is drilled, in many of the counties none at all, but the system is commanding attention, and the proportion sown broadcast is decreasing. Wheat is generally sown upon stalk land after the corn is gathered, and without previous ploughing. Almost the only manure applied to this crop is cotton-seed, and that not generally, but always with beneficial results.

6. A great variety of grasses are found in Georgia, both natural and cultivated, and pasture is supplied at but trifling cost, most of our correspondents rating it "no expense." Crab-grass grows in all sections, also crow-foot, sedge, wire-grass, wild oats, clover, *Lespedeza striata*, &c., the last named grass spreading with considerable rapidity and considered valuable by the planters. Clover grows well on good dry sub-soil; herds-grass and timothy do well on rich bottom lands of a close texture; lucerne is counted the most valuable of all forage crops in Georgia, and grows as well here as in France, making most excellent hay. On manured uplands blue-grass, meadow, oat grass, orchard grass and vernal grass grow during the winter, and if these are kept shut up from June to December stock may then be turned in and kept fat without other food. In middle and lower Georgia heavy manuring is generally necessary for clover, the cost of which may be repaid by its application to wheat with which the clover is sowed; the clover must be lightly grazed during the heat of summer, but may be pastured in April, interrupted in July and August, and resumed in September to be continued until January.

7. Fruit culture has received comparatively little attention in Georgia, but the capabilities of the State are beyond question, and are being gradually developed in different sections. Our Union county correspondent writes: "The capability of this county for fruit may be said to be rarely surpassed so far as peaches and apples are concerned. One acre sustains about fifty apple trees, yielding annually twenty to thirty bushels to the tree. Apples are best adapted to the soil and climate, and are worth here about fifty cents per bushel. A neighbor last year sold from a two acre-orchard about 700 bushels of apples, dried about 100 bushels, gave away to all who wanted, and had plenty for family use during the winter." Peaches are especially successful, the trees being long lived and subject to few diseases, and the shipping of early crops to the northern markets must eventually become an important and profitable business near the line of railroads on the coast. Our Hall correspondent writes: "Peaches grow to perfection; we have them from June until the last of October. They grow in the corners of fences, in old fields, or anywhere the seed may chance to be dropped. We have apples all the year round. Much attention is being given to this fruit, as its culture is considered profitable." Peaches are extensively grown in Spalding county, and from one point, Griffin, 200,000 pounds of dried fruit of last year's crop have been shipped. Large quantities are also dried and considerable distilled in Pike county, but the crop is uncertain, being liable to injury from frosts. In Taylor county peaches are the surest crop, seldom, if

ever, proving an entire failure. The banks of the St. Mary's river, in the southwestern part of the State, is represented as a very paradise for this fruit. Our Clarke correspondent writes: "All fruits do well. Dr. Berckman, the pomologist, said at one of our fairs that our pears were better in quality and appearance than any he had ever seen, and he had witnessed many displays in Europe and the United States. Dr. B. has now, near Augusta, 20,000 seedling pears to test. Our only trouble is late spring frost. This we avoid by heavy smoke early in the morning after a frost. Native winter apples do well, but northern varieties ripen too early. Figs and grapes do well." Grape culture has not been so generally successful as that of many other fruits, but many of our correspondents speak encouragingly. From Warren county we have: "Grapes do well here, and are highly profitable, but have been shamefully neglected. Some years ago a neighbor had ten vines growing in his garden, from which in one season he made 300 gallons of wine." From Cherokee: "The few vines that have been attended to are doing well, proving that our soil and climate are adapted to the culture. A. K. made last season, from a vineyard of perhaps three acres, left for years without cultivation, about ninety gallons of wine, (Catawba;) W. G., from a quarter acre made about twelve gallons." In Baldwin county "on an acre and a half vineyard a gentleman made about 600 gallons of wine, and will probably realize $1,400 net, or 150 per cent. on capital." In Taylor, Crawford and Charlton the Scuppernong grape is a perfect success, growing luxuriantly and with little trouble, the fruit being large and rich; the vines bear the third year and are not subject to decay. A single vine in ten to fifteen years will extend over an arbor 100 feet square. Wild grapes are found in abundance. In fact, all fruits not strictly tropical may be cultivated in Georgia with success.

FLORIDA.

1. Our returns from Florida are rather meagre, only about one-fourth of the counties furnishing responses to the circular sent out. From the northern tier of counties Jackson and Leon report an average decline of seventy-five per cent. in the value of farm lands since 1860, and Liberty fifty per cent. decrease; while in Duval interior lands have declined twenty per cent., but on the St. John's river have advanced one-third in value since the date named; and in Baker the estimated increase is fifty per cent. Alachua county shows a decline of fifty per cent. The next county south reports no change since 1860, our correspondent remarking that but few persons there own the land they live upon, the custom being to "settle in the woods, put up a log-house, clear a small tract and plant it for a few years, and when it begins to get poor move into the woods again, or move about where the range is good for cattle. There are, however, some fine farms near the county seat, where good corn and some cotton is raised. The value of improved lands is increased by cow-penning. The land is worth from five dollars to twenty dollars per acre. Good pine land can be bought at five dollars per acre, with houses, fences," &c. Still further south in Manatee county, bordering on the cypress swamp regions, lands are rated at one-half the estimated value in 1860. In fact, throughout the State the prices now given for farming lands are merely nominal, consequent upon the unsettled state of affairs, and comparatively few sales are made. The average decrease for the State, on the basis of these returns, is 55 per cent.

2. There is a large area of wild or unimproved lands in the State held at figures varying from ten cents to eight dollars, averaging from one dollar to two dollars per acre. In Jackson the unimproved lands are claimed to be better than the nominally improved—will yield from ten to twenty bushels of corn, or from six hundred to one thousand pounds of seed cotton to the acre, and may be purchased at from one dollar to two dollars per acre. In Liberty the average value is given as low as ten cents—land low, sandy hommock, capable of

producing oranges, sugar cane, corn, potatoes, rice, and long cotton; Leon, one dollar and fifty cents per acre—quality medium, fair while fresh, easily cleared and cultivated, and will produce twenty bushels of corn or half a bale of cotton per acre, and by a little manuring can be kept up to this; Baker county, one dollar and fifty cents per acre—very productive for cotton, sugar cane, potatoes, vegetables, &c.; Duval county—average fifty cents per acre. In Alachua nearly all the wild lands are owned by the State, the general government, or railroad companies. State lands are held at from fifty cents to eight dollars, mostly at the former. United States lands are only in the market as homesteads, and railroad lands vary in price from one dollar to two dollars and fifty cents. The land is principally "pine barren;" considerable heavy pitch-pine interspersed with cypress swamps, and in sections hommocks, the latter being very rich. The greater part of the land, however, is valuable only for timber and turpentine. In Levy the wild land is chiefly timber, and valued according to its location. A portion of this land is comparatively worthless, consisting of sand-hills and scrub lands, covered with brush and filled with a variety of wild animals, and people living adjacent are compelled to keep gangs of dogs for protection. There is plenty of government land upon which to settle, some of it the best hommock land, capable of yielding an average crop of forty bushels of corn; prices from one dollar to five dollars. Manatee county also has considerable hommock lands of first rate quality, underlaid with marl; worth from five dollars to ten dollars per acre. The timber of the hommocks consists of live oak, hickory, red cedar, bog, &c., while the pine is the turpentine or long pine.

3. The resources of Florida are to be found in her timber and soil, there existing (so far as yet developed) little of mineral wealth within the limits of the State. In Alachua a small deposit of bog iron is reported, and our Levy county correspondent states that there is a good iron mine in that county which has been worked, but not properly developed. The ore is said to contain seventy-five per cent. of pure iron. The mine is not now worked and could be purchased cheap. Timber in variety abounds in almost unlimited quantity, but in some sections the lumber business has been overdone, and the mills may be purchased at half cost. The climate and soil are exceedingly favorable to the culture of fruits and to successful general agriculture. Our Levy county correspondent writes: "The resources of this county are the best I ever saw at any place. The soil is not as good as at the west, but the climate is fine and less work is required to make a good living; and with the same spirit of enterprise here as is seen in the west, would develop a land not now known in the United States."

4. Cotton, corn, sugar-cane, rice, potatoes and fruits are the principal crops, but under the present system of culture yields are small and agriculture not profitable. In a number of counties cotton has been the specialty, but under present prices its production will doubtless decline in favor of other crops. Sugar-cane is considered a good crop and is getting more in favor; it is easily cultivated and, as our Leon correspondent says, "would be a good crop for white labor." In Baker county, sea-island cotton and sugar-cane are the chief productions. Duval county, sweet potatoes, corn and sugar-cane; corn yielding twenty bushels per acre, sweet potatoes one hundred to two hundred bushels, sugar-cane two hundred gallons sirup and two hundred pounds of sugar; the latter is the most profitable crop. In Alachua, sea-island cotton is the specialty, of which our reporter says: "The price of this cotton last year ranged from 40 cents to $1 60 per pound; this year from 35 to 90 cents. The average yield is about eighty-five pounds of lint per acre, but as high as four hundred pounds have been raised. At 50 cents, with the present labor, it is a paying crop. Cotton is a hard crop to raise, takes the whole year, and, for the labor expended, is the least paying crop in the country. During the past season ninety-nine out of every hundred have lost money. Corn produces an average of eight bushels on

pine lands and fifteen bushels on hommocks. Sugar-cane does well, but is raised for home consumption only."

5. Wheat is not grown as a crop in Florida, though a correspondent writes from Levy county that he thinks it would do well on their hommock lands, and our Manatee reporter says he has sown a package sent from this department, and it now looks as well as he has ever seen wheat in Maryland or elsewhere.

6. There are a variety of natural grasses growing throughout the State, and as a general rule cattle are pastured on the wild lands and without expense, frequently the whole year round. Among the grasses named by our correspondents are Bermuda grass, crab grass, crow-foot, joint grass, carpet grass, wire grass, &c. Our Levy county correspondent writes: "The grasses are all wild; stock runs out all the year in the woods. They are gathered in the spring, and penned every night until about August, when they are again turned out to run during the fall and winter. While kept up they are branded, and the cows are milked, though they are generally small and give but little milk, from one to three quarts per day. The calves during the summer are kept from the cows, except morning and night; during the fall and winter they run together."

7. The capabilities of Florida for raising tropical and semi-tropical fruits are well known, and must soon attract the attention of fruit-growers. In Jackson county grape culture is becoming prominent, the Scuppernong variety being most popular, as it succeeds finely and is free from disease; the soil and temperature of the county is said to be adapted to the production of grapes, which grow naturally and in abundance. Our Liberty correspondent says: "We have a small orange orchard of twenty-five trees, which yields at the rate of $25 per tree. The trees cost but $1 each annually for pruning and keeping clear of insects." In Baker county oranges and peaches, vegetables, &c., do well and pay largely. Our correspondent writes: "Send us some of your gardeners who understand the business. Last year a gardener planted fifteen acres in tomatoes, melons, cucumbers, &c., which were ready for market eight weeks in advance of northern vegetables. He shipped to New York, and his net gain was $22,000. I think he is from Maine. An orange and peach orchard of about one hundred trees yields to the owner $1,200 annually. We need enterprising men to improve our lands." Large orange groves are being planted in Levy county, and northern men are settling along the coast, planting fruit groves and improving the islands, where peaches, oranges, lemons, pine-apples, bananas, grapes, grape-fruit, &c., may be raised in abundance. Tropical fruits do well in Alachua county, especially the more hardy ones, figs, pomegranates, &c., while in Manatee, further south, the capacity for such fruits is unsurpassed, and only requires communication with northern markets to develop capabilities in this regard, and to attract industry and enterprise from other States.

ALABAMA.

1. The county reports show an average decrease in the price of farm lands of about sixty per cent.; no county reporting an increase. The decline is not uniform throughout the State, being affected in many cases by local causes, and varying according to the size of the tracts or farms offered for sale. Coosa county exhibits a decrease of at least fifty per cent. in large plantations, while small and well-improved farms sell at about the same price as in 1860. The maximum decrease reported is in the counties of Conecuh and Montgomery, where it reaches ninety per cent. A decline of fifty per cent. is observable in Macon county. Our correspondent writes as follows: "In 1860 the lands of Macon ranged in value from three to fifty dollars per acre. As the county is penetrated by two leading lines of railway, connecting on the east with Columbus, Georgia, and on the west with Montgomery, Alabama, access to market is ready and reliable. The county is in general remarkable for the salubrity of its atmosphere, and in many parts for the fertility of its soil. Towards the

northern extremity the geological formation is metamorphic, presenting limestones of very considerable economic value. The southern portion of the county lies in the upper margin of that wide belt of the cretaceous formation which stretches entirely through the State, and which furnishes some of the richest lands in the cotton-growing States." In Marengo county, near the western border of the State, the decrease is sixty-six per cent., though some of the best lands in the State, worth in 1860 $20 to $75 per acre, are included within its limits. The reporter says: "In the section known as the 'Canebrakes,' plantations rarely changed hands during the lifetimes of the owners. A gently undulating surface, a soil of great fertility, and a pure air characterize this portion of the county. Cedar of large size originally covered most of the land and constituted the fencing material. The soil, being largely impregnated with lime, is admirably adapted to the cereal crops, while cotton, in favorable seasons, yielded large returns. Corn, cultivated on the same land for thirty years without manure, frequently yields fifty bushels per acre. These lands are intrinsically as valuable as any in the United States. In other parts of the county are large areas of improved fertile 'post-oak' and river lands, that were worth, in 1860, $20 to $30 per acre. All these advantages must in time make the county exceedingly attractive to immigration. Cut up into small farms, and cultivated by an intelligent population, these lands will rapidly attain their former value, and probably exceed it." There is a class of canebrake lands in many counties of central Alabama of a similar character.

2. The average price of unimproved lands may be stated at $1 75, the range being from twelve cents to $5, including a variety in quality and natural capabilities. In Macon, Conecuh, Butler, Chambers, Morgan, Tuscaloosa, and some other counties, the general character of such lands is poor; pine forests, with a thin soil, covering large areas. The timber constitutes the chief value of such lands, though in some cases, when cleared, especially upon the banks of the small streams, they produce well. In some other sections of the State the uncultivated lands are heavily timbered with pine, oak, hickory, poplar, walnut, mulberry, &c. They are generally attached to plantations, and are used as summer ranges for cattle and hogs. With a proper system of culture, and an industrious, energetic population, a large proportion of the now unimproved lands will be reclaimed, and prove of great value.

3. The inducements presented for the investment of capital and the immigration of intelligent labor in the agricultural and mineral resources of the State must, at some future time, make it one of the most desirable portions of the country.

Immense forests of the finest qualities and most valuable kinds of timber cover large tracts of land in the counties of Marengo, Clark, St. Clair, Clay, Marshall, Randolph, Lee, Baine, Hale, Chambers, Montgomery, and many others; while in Tuscaloosa, Perry, Butler, Conecuh, Coosa, Calhoun, and Macon, pine, in seemingly inexhaustible quantities, awaits the introduction of steam saw-mills. As yet but little lumber is sawed beyond the wants of the resident population, in part owing to the want of cheap transportation.

Minerals have been lavishly distributed. Coal, iron, gold, silver, copper, lime, granite, and serpentine are found in many localities, and in some instances were successfully mined before the commencement of the war. In Randolph county gold was discovered in 1836, and fortunes were made by mining. In Baine county the indications of copper and lead in the mountains have been sufficient to induce efforts, on a small scale, to develop them. Lee county produces granite of an inferior quality, and also a coarse serpentine, which was worked by the aborigines into water vessels, and is now used for backing fireplaces, &c.

4. Previous to 1860 cotton received by far the greatest share of attention, and constituted almost the only article of export. Other crops were raised for

home consumption, and made subsidiary to it. For many years past the yield per acre of the great staple has been steadily diminishing under the careless system of culture which obtains, no return being made to the soil for the continued and exhaustive demands made upon it. An almost universal complaint is made of the unprofitableness of cotton culture at present prices, and in the unsettled condition of labor, and a determination expressed to devote more attention to the cereals and root crops, some of which are well suited to the soil and climate.

5. Red May, purple-straw, blue-stem, Orleans, white May, red Mediterranean, common white, and other varieties of wheat are sown. Winter wheat is almost exclusively grown, but the crop is a very uncertain one, and but little care taken in its culture; drilling is almost unknown, the "brush drag" being frequently used to cover the grain sown upon roughly-ploughed land. Red May, Orleans May, blue-stem, and purple-straw are especially mentioned as being earlier, more hardy, and less liable to rust, the great enemy of the wheat crop in that region. Seeding is done during October and November, and harvesting from May 20 to June 20.

6. No special attention has been given to the cultivation of grasses. Crab grass is the most common of the indigenous kinds, springing up in oat fields and taking complete possession of the corn lands as soon as the cultivation of the crop ceases, thus furnishing good summer pasture. On worn-out lands broom sedge springs up, affording good early pasture, but becoming too dry and harsh by midsummer. In many places the Bermuda grass has taken firm foothold, and within a few years the *Lespedeza* has made its appearance, displacing all other varieties, and proving a very valuable acquisition to the pastures. In Marengo and Hale counties red clover has been found to do well on the richer soils, but is not generally cultivated. Some other varieties, such as flag grass, "nimble Will," &c., have good local reputation.

7. Fruits, in great variety, flourish. Apples, peaches, pears, plums, figs, apricots, pomegranates, grapes, melons, berries, &c., are grown, or grow spontaneously; but little attention, however, is paid to fruit culture, except for home consumption. The Scuppernong grape is reported by a correspondent in Marengo county to be entirely free from rot, and to yield certainly and largely. In Perry county 3,000 to 4,000 quarts of strawberries per acre, valued at 20 cents to 50 cents per quart, is not considered an unusual yield. A farmer in Macon county realized $87 50 from the melons grown upon one-eighth of an acre.

LOUISIANA.

1. In the present unsettled condition of affairs in Louisiana, as in the other States of that section of the country, it is difficult to approximate the relative value of farm lands as compared with the census estimates of 1860. Our correspondents in no instance report the decrease in price at less than thirty-three per cent., and, in some cases, give it as high as ninety per cent., the former figures being returned for Washington, and the latter for Tensas and Concordia, with no demand and few sales other than forced, and little money in the country to purchase. The average for the State, on the basis of these returns, is seventy per cent. Our Tensas correspondent writes: "Within a year two of the most valuable estates have been assessed by order of the court, (the owner having deceased,) and the value placed on land, with every necessary improvement, was $5 per acre for the cleared, and $10 per acre for the portion in timber. In 1859 about 400 acres of one of these places were sold at $125 per acre, and $18,000 in cash paid upon it, but within the past twelve months the purchaser obtained a release of the purchase by forfeiting this payment. During 1860, when the levees were intact, these same lands could not have been purchased for $130 per acre, and would readily have commanded that price at public sale.

At this time the value of land is only nominal, and commands no stated price." Our Rapides correspondent says : "Well improved sugar and cotton plantations have no fixed price; few sales; no persons here able to buy; nearly all desiring to sell. Hundreds of thousands of well improved acres are now lying idle, there being no labor for them. The richest lands (no levees needed) are growing up in weeds, trees, &c. On my own plantation, where I have made over 1,000 hogsheads of sugar, 2,500 barrels of molasses, 15,000 bushels of corn, with hay, &c., with pastures for 500 head of horned cattle, large flocks of sheep and hogs, mares and colts, I have this year less than 200 hogsheads of sugar, and but little corn; stock of cattle, sheep, hogs, mares and colts all gone, destroyed during the war."

2. Under the heavy depreciation of plantations the market value of wild and unimproved lands must be but nominal, and our correspondents estimate them at from "but little value," to $3 per acre, according to location and resources. These lands are varied in character and quality, from light sandy loam on upland to heavily timbered bottoms and cypress swamps, the alluvial or red lands being of the richest kind when protected from overflow, and the light soil susceptible of thorough cultivation, and capable of producing good crops of corn and cotton.

3. In the soil and timber are to be found the chief resources of this State, but few minerals, except salt, having as yet been developed or discovered, though some coal, iron, and copper are reported to exist in Union parish. Timber is abundant in all parts of the State, embracing many varieties of oak, ash, cottonwood, cypress, gum, elm, sycamore, pecan, hackberry, pine, &c., and presenting great inducements for development, some of the pine forests capable of producing quantities of turpentine. In St. Mary's parish alone it is estimated there is timber enough to make 10,000,000 cords of sugar wood, and swamps to the extent of 50,000 acres which may be reclaimed and converted into the richest rice fields. As an agricultural State Louisiana has great resources. In Union parish, in the northern part of the State, there are swamp lands which are said to have been in cultivation one hundred years, and the crops now taken from them will compare favorably with those gathered from fresh lands of the same quality. The parishes of St. Landry, Lafayette, Vermilion, St. Martin, and St. Mary, on the southern coast, forming a body of land about ninety miles in width, and running back from the coast about seventy-five miles, contain over 3,000,000 acres of tillable land, most of which is claimed to be of inexhaustible fertility, producing varied and abundant crops, and yielding garden vegetables, &c., all the year round.

On one of the islands within the limits of St. Mary's parish—Petite Anse or Salt island—there exists an immense bed of salt. By boring, parties have proved that the bed is half a mile square, and it may extend a mile or more. They have gone thirty-eight feet into the solid salt, and find no signs of the bottom of the stratum. The surface is about on a level with tide-water, and the earth covers the salt from eleven to thirty feet. On the surface of the salt they found a soil like that of the surrounding marshes, and above this sedge or marsh grass in a good state of preservation. Above the latter the soil appears to be the workings of the hill-sides above. The Planter's Banner says of this remarkable mine, "it is believed that, like the salt mine in Poza, in Europe, it was moulded in the crater of a volcano. The surface of the salt formation is on a dead level with the surface of the Gulf water. It is not at all improbable that about the time that the fires of the ancient volcano that burnt out the bowels of this island were nearly exhausted, a breach next to the water of the Gulf was made, and a flood of salt water entered the burning chasm and extinguished the fires at the same time that the heat evaporated the fresh water and left a deposit of salt. As the earth was heated for long distances below and around, it could not suddenly cool, but would continue for days, and, perhaps, weeks and months,

to impart its heat to the mass of solid salt and water above it. As the fresh water evaporated, salt water would flow in and take its place, and from these new supplies deposits of salt would continue to be made till the surface of the solid mass was on a level with the Gulf. There the work would stop. The baked sides of a crater would form a good pit for the manufacture of salt. The washings of the tides would make a muddy deposit on the surface of the mine, and in this mud marsh-grass would grow. This mud and grass they now find on the first formation above the salt. Then the rough and loose earth thrown up, forming a hill on the north side of the salt mine, would begin to wash down by succeeding rains. That is exactly what it has been doing till the marsh-grass and earth are now covered with a deposit of mud from eleven to thirty feet in depth."

The region embraced within the parishes named is a fine grazing country, and vast herds of cattle and large flocks of sheep may be pastured upon the extensive natural meadows of the "Opelousas prairie," extending seventy-five miles southwest and northeast, with a width of twenty-five miles. One man is said to own 12,000 head of cattle, and it is estimated that from 75,000 to 100,000 head are now grazing upon these prairies.

4. Cotton, sugar, corn, and potatoes are the principal crops in Louisiana, and before the war the cultivation of the first two named was very profitable, but our correspondents uniformly represent the production of cotton as ruinous to the planter during the past year. Jackson parish reports two hundred pounds of lint cotton to the acre, fifteen bushels of corn, one hundred and fifty bushels of sweet potatoes, and twenty bushels of peas. Tensas parish, one to one and a half bales to the acre in good season, fifty to seventy-five bushels of corn; in cultivation, nine acres of cotton allotted to one laborer and five acres of corn. In Union parish about six bales of cotton to the hand was expected before the war. In Carroll parish cotton will produce six hundred pounds lint to the acre when newly cultivated, and a fair laborer can make eight bales of cotton and one hundred bushels of corn, yielding about $500 to the hand; but under the present system the average is two and a half bales cotton and twenty-five bushels corn to the hand. Prior to the war the parish of Rapides produced from 30,000 to 40,000 bales cotton, 15,000 to 18,000 hogsheads sugar, and 30,000 barrels molasses, but the production has much deteriorated, though with the labor and capital at command, the capabilities are still as great. In the southern tier of parishes sugar, rice, and tobacco are made specialties, and fruits are extensively grown, with great inducements for the increase of the latter production.

5. But little attention has been given to the growth of wheat, scarcely sufficient to develop the capabilities of the soil and climate to produce it successfully. In Bossier parish wheat was grown to some extent during the war and did well. The Tappahannock has been introduced in Union parish, and has demonstrated that wheat may be successfully grown there. In Avoyelles parish planters are trying the crop the present year. In a majority of the parishes, however, the culture of wheat is considered impracticable, the rust appearing to be its most serious enemy. When grown at all, the planting season is the last of October and first of November, and harvesting the latter part of June.

6. Bermuda and crab-grass, crow-foot, sedge, and the common prairie grass, with the swamp grasses and wild canes, afford the pastures for stock, upon which the latter can feed from nine to eleven months, and in some sections the entire year, without fodder or shelter. Our Rapides correspondent says: "Stock of every description—except working stock—can be sustained in this locality the entire year upon pastures. When the fields become exhausted they find sustenance in the woods and the wild cane, the latter being superior for horses and cattle in winter. There are several varieties of foreign grasses here admirably adapted to our soil and climate. Rye grows vigorously, and

affords good winter pasture, and if the stock be taken off in March it will mature a good crop of grain in June or July. Hungarian grass is a superior variety for hay. 'Reserve grass' eclipses all, being very luxuriant and nutritious. It is exclusively a winter grass, never appearing in summer. If allowed to seed, which it does in April, it will reproduce itself perpetually. After grazing it through the winter, if permitted to seed, it will yield a fair crop of hay. I consider it superior to all other winter grasses, and its seed is almost equal to oats." The vast prairie pastures of the Opelousas prairie, already referred to, contains more than 1,200,000 acres, exclusive of the numerous points of woods that fringe its margin on all sides. These prairies are admirably adapted to grazing, grass covering almost every surface that is not shaded by forests, or not in cultivation. In the parish of St. Landry alone there are over half a million acres in grass not under fence. On these prairies it is said that 100,000 tons of hay might be made yearly for the New Orleans and other markets, and which may be made and marketed a month earlier than western and northern crops.

7. Louisiana possesses great capabilities for fruit culture, and the climate and soil present strong inducements to persons desiring to engage in such production. In St. Mary parish they have fruits of various kinds from April to November: "The Japan plum grows all winter and ripens in April; dewberries also ripen in April, and grow in abundance; strawberries, blackberries, and mulberries ripen in May; plums in June; peaches, quinces, and figs in July, and grapes and apples in August. The Muscadine, a species of Scuppernong, grows wild and ripens in August; pears ripen in August, and grow in great perfection; oranges ripen in October, and usually remain good on the trees till December; bananas, limes, and lemons ripen in October." The yield of oranges per acre is enormous. Our correspondent writes that "it is usual to plant about one hundred trees to the acre below New Orleans on the river. Some orchards yield from $10,000 to $20,000 annually. A full-grown tree will bear 1,000 oranges, and a single tree has been known to yield 5,000 oranges. Trees commence bearing when five years old, when properly managed." What we quote in regard to the capabilities of this parish may be said, with slight variation, of most of the lower counties of the State, while in the more northern regions many of the fruits named grow in perfection, and in some localities the apple succeeds well. Our Rapides reporter writes: "I have a second crop of apples this year. They are hard, small, and poor, though they are eaten." In Washington parish a small orchard, chiefly peaches, in one season yielded a profit of $4,000, the fruit being early and within close proximity to New Orleans markets. Our East Feliciana correspondent writes: "This is one of the finest fruit regions in the world. Apples, peaches, pears, quinces, plums, figs, grapes, berries, &c., do well, and wild blackberries grow in great abundance, from which a superior wine is made. We have, as yet, but few orchards. One man this season sold $600 worth of pears from fourteen trees." Though but little attention has heretofore been given to fruit culture, the capabilities of the State are so evident, and the inducements so strong, in a pecuniary point of view, that this production must, at an early day, become a leading interest of Louisiana.

ARKANSAS.

1. Two counties, Newton and Benton, report considerable increase in prices of lands since 1860; others give an average decrease of sixty per cent. (varying from twenty to ninety per cent.) since 1860. Jefferson reports lands almost for nothing; farms worth $100 per acre before the war would now bring hardly $5 per acre. Drew reports forced sales at what the creditor pleases to bid—sometimes only a few cents per acre; Clark, eighty to ninety per cent. decrease

on best lands for cash, and no buyers at that; Montgomery, prices much depressed for two years after the war; but a good crop this year, and emigrants coming in, have brought them up to twenty-five or thirty per cent. of prices in 1860; Sebastian reports decrease at "ten-tenths," but looking up. The average depreciation for the State is fifty-five per cent.

2. Homesteads and other government lands at usual rates in Johnson, Clark, and Conway counties; some very fertile, but few entries. Hilly, heavily timbered lands in Montgomery at $1 25; Madison, at $3; Benton, table lands of Ozark mountains, $3 to $5. These are fertile for cereals, fruits, peas, beans, &c. Johnson reports government lands held by speculators at $5 to $8 for river lands, and $3 to $5 for uplands; and State lands, swamp and overflowed, at 50 to 75 cents—the same held by speculators at $1 to $3, and if good farm lands, $3 to $5; Sebastian river lands, $8 to $15, and uplands $2 50 to $5; produce cereals, potatoes, vegetables, and cotton; Union, various soils, at 75 cents; uplands produce 200 to 300 pounds cotton, and ten to twenty bushels corn; St. Francis, varied soils, $1 25; will produce 400 pounds of cotton, thirty-six bushels of corn, or twenty bushels of wheat or oats; Mississippi rice lands, annually overflowed and requiring levees, at 50 cents. Monroe, good black loam, at 50 cents to $10; will produce 500 pounds cotton, 30 bushels corn, and 25 bushels wheat; Prairie, hill or upland for 75 cents, and bottom land for $1. The upland prairie or timber lands will produce 35 bushels corn and 20 bushels wheat; under good system of cultivation, one-half more. In Drew, farms produce 200 to 300 pounds ginned cotton, 15 to 25 bushels corn, and 150 to 250 bushels sweet potatoes, without manuring; generally well timbered; forced sales at two and three cents per acre. In Clark, at forced sale, a section (640 acres) sold for $15, and a quarter (160 acres) for $5. No voluntary sales; money scarce.

3. Soils reported "rich" and "fertile," in Newton, Madison, Mississippi, Prairie, Conway, and Jefferson. Timber, of many varieties, reported in Newton, Madison, Sebastian, Union, Prairie, and White counties; pineries in Benton, Clark, and Prairie, and cypress forests in Monroe, (timber can be floated to the mills in overflows at little cost,) and Prairie counties. In Newton county lead and silver are found on the surface; in Madison, iron, coal, and lead; Montgomery, lead, silver, gold, and copper; Sebastian and Union, coal; White, coal, and salt by boring; but all undeveloped except a little coal for smithing. Benton abounds in minerals undeveloped. Clark reports that since the demise of King Cotton they have no resources—"everything lies around loose;" sandy lands abound in magnificent timber, but nothing is developed. Prairie county reports soil unsurpassed for farmers, timber for lumberers, black-oak and hides for tanners, railroad and river facilities abundant, healthy climate, good water, and plenty of good schools. Drew is the centre of the cotton region, and well supplied with water facilities for transportation. Jefferson has excellent soil, pleasant climate, and healthy country, but all destitute.

4. Union, Mississippi, St. Francis, Clark, Prairie, White, and Conway report that cotton *was* their specialty, but likely to be abandoned. Sebastian, Monroe, White, and Drew report cotton and corn, the latter probably to supersede the former. Montgomery and Madison, corn for bread, and for feeding cattle and hogs for market. Newton, corn, wheat, and sorghum abundant, and with little labor. Johnson, wheat, corn, and potatoes for home and market, and cotton for export. Sebastian, corn, cotton, and some wheat, but not cultivated in farmer-like manner. In Benton, apples are becoming a specialty; trees bear fruit at five years old; five to ten bushels at ten years old, the fruit selling at fifty cents, to be taken to Texas, where it commands high figures.

Prices reported in Montgomery: corn at 50 cents to $1, and raised at a profit of fifty to one hundred per cent.; in Johnson, corn, 60 to 75 cents; wheat, $2; sweet potatoes, 50 cents per bushel; Sebastian, wheat at $1 50 to $2.

5. In Montgomery, white and red May. Walker is best, not so early, and therefore subject to rust. White May not so early as red, but a much prettier grain. In Newton, Mediterranean and Walker; Johnson, red May, Walker, and red and white Mediterranean, the latter yielding most when they succeed, but eight or ten days later; Benton, flint or May; Prairie, long bearded red, on account of the attacks of the small blackbird; White county, May wheat; Conway, little May; Drew, white, and red winter. The earliest ripening always preferred on account of insects, birds, or disease. Usual sowing is in October and November; Newton and Madison in September, some as late as December, and in Prairie county, from October 15 to February 15. Harvest is in June generally, but commences in some counties by the middle of May. In all cases they sow broadcoast, generally on corn ground before the corn is removed, sometimes among the grass and weeds, and plough or harrow in. If the ground is first cultivated or ploughed, the grain is brushed in. Reporters generally state the yield at from five to thirty bushels, and agree that careful cultivation would greatly increase it. In Monroe and St. Francis little or no wheat is cultivated.

6. Principal wild grasses are crab grass on the poor and nimble Will on the richer lands; along rivers the cane shoots furnish pasture the year round; beside these, blue sedge on elevated timber lands, and winter grass on river lands in some counties; wild pea vines in the woods of Madison; blue grass, red top and timothy are natives in Benton county, and only need renewing every three or four years in Mississippi county; barren grass on sandy lands and a perennial on the black lands of Clark county; clovers, timothy, rye, and oats grow wild in Prairie county, and prairie and other grasses are named by some. No special pastures are grown, but cattle are turned out on ranges till after harvest and grow fat. On cane lands they keep fat the whole year. In some counties from three to four months of foddering, with cotton seed and a little salt, is needed; pine, cane, and other thickets are sufficient shelter. Two acres of cotton seed will keep a cow well with wild pasture. Hence cost of keeping is merely nominal, and in many counties stock raising could be made profitable.

7. Except in Benton little or no attention is given to fruit raising for profit, yet in all counties peaches and apples do well, in some very well in abundance and quality, save that acclimated apples must be raised for winter keeping. Figs do well in Clark, where peaches rarely fail, and apples not once in thirty years, some trees yielding seventy-five bushels each. Prairie county has several large nurseries, and peaches and pears are larger and better flavored than at the north. Jefferson reports the pear and peach as succeeding best, and the Ouchita grape (now cultivated in France) as originating there, wild. Chickasaw plums, very fine, grow wild in great abundance in Montgomery, White, and Drew. And several varieties of excellent wild grapes are abundant in Johnson, Union, Benton, Drew, (which reports gooseberries and currants as not succeeding well,) and Jefferson. Cultivated sorts of grapes do not succeed well in Union, White, and Drew, as they are apt to mildew and rot. The want of enterprise and skill to raise fruit for market, and open facilities of transportation, alone prevent a number of counties from reaping profit from fruit cultivation.

HORSE-HOEING WHEAT.

With the improvement in farm machinery so advanced and progressive at the present time, it seems possible and practicable, notwithstanding the high price of labor, to try the experiment—if it need be called an experiment—of horse-hoeing our wheat. That it will increase the yield there is no doubt; and very little that it will improve the quality, destroy weeds, mitigate drought, promote

growth, hasten maturity, and resist or anticipate insect attacks. With red wheat at $1 50 in the bin, will it not pay to run a system of horse-hoes over level prairies, at the rate of several acres per day? Will not a saving of forty per cent. of the seed, by wide drilling to facilitate hoeing, pay a large portion of the expense? A half bushel per acre of seed saved, worth seventy-five cents to one dollar, with the right sort of an implement for cultivating, would pay every cent of the cost.

Too much seed is used in wheat culture. Scarcely less than twenty millions of acres will suffice for the wheat area of the United States, requiring nearly thirty millions of bushels of seed, and little more than ten bushels per acre are produced. Ten millions of bushels of this seed, worth perhaps sixteen millions of dollars, might be saved to the country, sold for bread, and the proceeds applied to the *cultivation* of growing wheat, with a fair probability of obtaining by such means more than twenty additional millions of bushels for the bread of the nation. So large a portion of this seed is now wasted by sowing at irregular intervals and at unequal depths, and so much is choked by weeds, that farmers say they cannot use a less quantity; but with universal drilling, at a width sufficient to allow the tillering and growth which would result from hoeing or cultivating, two-thirds of the present supply would be more than ample.

Is not a severe reflection upon the judgment and skill of wheat-growers furnished by the fact that ninety-nine of a hundred of them "run out" their seed in a few years, and depend upon the special culture and superior judgment of the remaining one to furnish them with improved seed at $4 or $5 per bushel?

About one bushel in every seven produced in the United States is saved for seed, when the requirement should be no more than one for every twenty. Thus millions of bushels are wasted, buried in the earth with no prospect of resurrection, and sacrificed to ignorance and thriftlessness. It is taking the children's bread, without the poor satisfaction of having fed a dog with it.

Such waste may be avoided. Thin seeding is impracticable with poor culture, though the result varies little whether it is thick or thin; it is not only practicable, but necessary, in connection with deep ploughing, thorough tillage, and hoeing for the purpose of killing weeds, admitting air, and retaining moisture about the roots of the plant.

Abundant evidence of the value of horse-hoeing can be furnished, not only from Europe, where no progressive farmer thinks of omitting it, but in this country. A correspondent of this Department, in North Carolina, last year drilled one pound nine ounces of Tappahannock wheat, at intervals of eighteen inches, and cultivated between the drills; the result was 186 pounds of wheat, or about one hundred and twenty to one, instead of seven to one, our average product of late. R. A. Gilpin, of West Chester, Pennsylvania, in 1866, drilled one acre, at intervals of twenty inches, and the remainder of the field at ten inches, and obtained nine bushels per acre from the narrow drilling without hoeing, and *twenty-three* bushels from the wide drilling with once cultivating with a one-horse hoe-harrow. Thus a single hoeing produced fourteen bushels of wheat, worth $30, besides saving one-half of the seed in drilling. A fact in cotton growing, just received, illustrates the value of thorough cultivation, whether applied to wheat or cotton production: *Four bales* of cotton were last year grown upon a single acre, by the use of the spade and hoe alone. Our farmers may freely acknowledge the advantage of cultivating wheat, but still insist that it will not pay, and continue to incur the loss of half to two-thirds of their crop and all of their profits as the penalty of neglect.

When Ohio, as in 1866, gathered but three bushels of seed for every bushel sown, the French inquiry is suggested again: "What advantage can be gained from sowing three hectolitres of seed in order to gain six or ten?" and "Would it not be better to bestow upon one hectare the manure and labor we should have

spent upon two?" The crowding of wheat originated the English saying: "The worst weed for the corn is *corn*." Who can doubt, in view of the recent splendid success of inventors in originating horse-cultivators and improving wheat-drills, "that sowing in rows with a machine which does not put two grains where there ought to be only one, nor leave only two where there ought to be four, is a true progress, and a great step towards amelioration based upon reasonable practice?"

It is a false theory that the practice of any community is the outgrowth of the average common sense of that community, and therefore right under the circumstances. It is a truth that people do not do as well as they know, and that they are apt to follow traditions from generation to generation, and especially to fall into careless, easy, and slovenly habits. The practice here recommended is not a novelty, even in this country, and in England, more than a century ago, in Thomas Hale's "Complete Body of Husbandry," it is said: "We see drill and horse-hoeing husbandry produce larger crops in the same piece of ground than the common, and at less expense; and this advantage arises from the breaking and dividing of the ground in the intervals with the hoe-plough."

AGRICULTURE IN COMMON SCHOOLS.

The future is auspicious with evidences of a widely-spreading interest in industrial education. Colleges are everywhere springing up, and the right men will eventually be found to fill professorships, and great good will finally result, while comparative successes will, for many years, be mingled with failures, in the numerous experiments growing out of these great educational enterprises. But the facilities to be furnished by these schools will never reach, directly, the great mass of the children in common public schools. Would it not be well to introduce into every district school in the country some primary works, inculcating elementary principles of science, in their application to the practice of agri culture? An interest in agricultural education would thus arise among the youth in common public schools, from whose ranks our new industrial colleges would be filled. A series of such manuals, of foreign origin, have been submitted to several officials and men of science, by Mr. Joseph L. Smith, for a recommendation of the introduction of such means of instruction into the elementary schools of the land. They involve the principles of agricultural geology, chemistry, farm accounts, farm practice, and domestic economy, and are written by Johnston, Stephens, Hodges, Campbell, Pringle, and others well known to science and to practical agriculture. The importance of the subject has been indorsed by Professor Henry, General Howard, the Commissioner of Indian Affairs, (Hon. N. G. Taylor,) and officers of the Department of Agriculture, and others.

There is a want in this direction that should soon be supplied by American writers. The peculiar circumstances of American agriculture render necessary works expressly prepared to meet such conditions. Who is able to prepare one or more such manuals, in a manner worthy of the subject and of this progressive era? He who could worthily accomplish it would be a great public benefactor. There are good farmers who know little of science, and men of science with less knowledge of agriculture; but it is difficult to find a thoroughly scientific writer who is, also, thoroughly acquainted with agricultural practice, and is thus able to apply correctly the principles of abstract science to the processes of agriculture. A clear thinker, and lucid writer, who could thus unite truth with action, and marry thought to labor, would be worthy of higher honors than the greatest savans of the time.

CASTOR-OIL BEAN.

Intimations of a revival of interest in the production of the *Ricinus communis* (or *Palma Christi*) have been received from the southwest particularly, with assurances of its attempted culture as a field crop. Mississippi, Louisiana, Arkansas, and Texas are peculiarly adapted, in soil and climate, to its profitable culture; and many persons in the southwest propose to engage in the business this spring.

In Illinois and St. Louis, where a successful farm product has been made of it, the following varieties are grown: *Ricinus communis*, early, four feet in height; *R. Spectabilis*, dark green leaves, five feet; *R. Sanguineus*, fruit red, in clusters, stalks dark red, seven feet; *R. Lividus*, stems brilliant red, fruit green, five feet; *R. Leucocarpus*, dwarf, three feet, white fruit, an African variety; *R. Brasiliensis*, brownish yellow fruit, five feet high.

In South Carolina it was reported, years ago, growing twelve feet high; in the vicinity of Vicksburg, Mississippi, it has been made a very profitable crop; in Texas it produces plants of great size and height. From thirty to one hundred bushels of beans per acre have been obtained in different locations, and two gallons of oil, or twenty-five per cent., obtained per bushel if the seeds are good; but twenty to twenty-five bushels are an average yield in Illinois and Missouri. The *R. Lividus* is a native of the Cape of Good Hope, and will thrive in a variety of soils of different elevations. In the tropics it is planted singly, ten or twelve feet apart. In poorer soils or more northern localities, a less distance would do. In its native clime the plant bears the first season, grows continuously for four years, and continues to yield for many seasons. The seeds are gathered when the pods begin to turn brown.

It is a common crop in all parts of India. The oil is there extracted by boiling in water and skimming off the oil—a very crude and wasteful mode, and the oil thus obtained is used exclusively for burning.

St. Louis has heretofore been the centre of production in this country, and the principal place of manufacture. The culture required is very much like that given to corn, and the soil should be the best of corn land; the planting should be done with the first warming of the soil, after danger from frosts is over; the hills should be five or six feet apart, and even seven or eight if the soil is sufficiently rich to make the requisite growth; the distance should be greater in the south than in more northern locations. As with corn or anything else, thorough culture pays best. The receipts at St. Louis last year are estimated at 50,000 bushels. The Prairie Farmer says, concerning prices and profits:

The market price is variable. During the past winter the beans in the St. Louis market have ranged from $3 90 to $1 25 per bushel. As the cost of growing does not differ materially from that of corn, the approximate profits can be calculated. At the present depressed condition of the market, an acre of beans would yield about $25, leaving but little margin for profit. The oil is quoted at $2 10 to $2 25 per gallon. As the yield of oil is about sixty-eight gallons per acre, the manufactured oil would amount to about $150 per acre. This gives four dollars to the manufacturer and one dollar to the producer—a division which cannot be regarded as equitable.

MANURES AND HOW TO APPLY THEM.

In an interesting discussion upon the above subject before the Bedford (N. H.) Farmers' Club, Mr. Josiah Clark, of Hooksett, claimed to have discovered a new process of chemicalizing manure, by the application of which large crops can be raised upon a small quantity of manure. He said he had been experimenting for the past seventeen years on different soils, and had satisfied himself from actual results that, at an expense of three dollars per acre, he can in-

troduce chemicals into five cords of manure that will produce larger crops than can be obtained from ten cords of crude manure, and last longer for future crops, saving at least fifty per cent. in labor and application. Dr. Wilkins thought that if five or six tons of hay could be produced, as promised by Mr. C. by chemical results, it would have a tendency to injure the soil, and illustrated his view by referring to the vineyards on the Rhine, which, when manured heavily, will, for one or two years, produce extraordinary crops of grapes, and then become fruitless, requiring more than twelve years to restore the soil so as to produce grapes again.

The chairman of the club said, in reference to the application of manure, that "after trying several ways, he prefers breaking up the sod early in the fall, ploughing not less than seven inches deep; in the spring drawing out the manure from the barn cellar after it had been forked over, placing it in heaps; making five heaps from a cart-body full, five paces apart each way, spreading it, and harrowing it under the depth of three inches. If to be planted in corn and potatoes, chain it both ways and drop the seeds on the square. Or, if to be sown for fodder, harrow in four bushels of oats to the acre and cut in the milk, which makes a superior feed for milch cows, nearly equal to herd's-grass. After the oat crop is harvested, plough the stubble under, across the furrows. The next spring harrow, haul from the barn cellar the same quantity of manure as applied to the first crop, about twenty-five loads to an acre, spread as before, and harrow or cultivate in to the depth of three inches, sow on three bushels of barley, eight pounds of clover and twelve quarts of grass-seed, harrow with a light harrow and roll; you will then get a good crop of barley, a good catch of grass, and a mowing field that will give you good crops, but do not fall-feed unless you want to spoil your mowing fields and be obliged to take them up in three years."

Mr. P. T. Campbell suggested the addition of two bushels of salt and three bushels of plaster per acre, immediately after the manure is spread, to be harrowed in at the same time, to keep the ammonia from escaping and to chemicalize the manures sufficiently for a successful crop.

Messrs. French, Manning, and Rollins thought leached ashes the best manure that can be applied to the soil, especially for fruit. The last named gentleman had doubled his crop of grass by the application of one hundred bushels per acre.

At the close of the discussion the club voted twenty to one that manure should be applied to the sod after it had been turned over, and as near the surface as it is possible to cover it, not over three inches in depth.

PUBLICATION OF THE REPORTS.

The dissemination of the reports of this department is tenaciously adhered to by Congressmen, acting for and at the direct and urgent request of their constituents, notwithstanding occasional expressions of dissent from persons engaged in publishing agricultural books. Recognizing the great utility of the distribution, and to some extent the reasonableness of a protest against issuing a mere agricultural compilation on general topics, the Commissioner has expressed his intention of restricting the acceptance of essays from outside sources and confining the matter mainly to the actual work of the department, thus making the annual volume in reality and exclusively a Report of the Department of Agriculture. No book publisher could then, on any pretext, object to their wide circulation, and all would concur with a correspondent—one of a multitude—who says: "They would increase the demand for such works by stimulating the appetite and awakening a desire for further investigation."

The Monthly Report cannot, in any sense, come under this protest, as it is not sent to individual farmers, but to the agricultural, metropolitan, and local press; to officers of agricultural societies; statistical reporters; meteorological observers; industrial and technical societies in this country and in Europe; and writers for the press. The design is simply to furnish useful data, officially obtained—much of it otherwise practically inaccessible—to the people, not directly, but *through the press*. Its office is to enlarge and enrich, in an agricultural point of view, the current matter of such publications, and not to compete or interfere with any of them in the slightest degree. If this aim is properly understood there certainly cannot be found a publisher with views so narrow or prejudices so small as to make possible the least hostility or jealousy in the case.

Wool imported in first four months of present fiscal year—from July 1, 1867, *to November* 1, 1867.

Month.	Wool.		Shoddy.	
	Pounds.	Value.	Pounds.	Value.
July	2,798,275	$496,157	50,237	$5,339
August	1,342,015	226,573	108,232	10,389
September	2,193,490	281,418	5,490	2,105
October	3,077,146	474,805	127,696	4,288
Total	9,410,926	1,478,953	291,655	22,121

Total amount of woollens imported in the period of four months as above.

Kinds.	Quantity.	Value.
Cloths and cassimeres		$3,932,221
Shawls		661,662
Blankets		13,113
Carpets	yards.. 619,144	675,147
Dress goods	yards.. 26,218,478	8,233,514
Manufactures not specified		3,669,648
Total		17,185,305

METEOROLOGY.

[Compiled in the Department of Agriculture, from the reports made by the observers for the Smithsonian Institution.]

JANUARY, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for January, 1868, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MAINE.				°		°	°	*In.*
Steuben	Washington	J. D. Parker	24	38	19	— 8	15.8	4.93
Williamsburg	Piscataquis	Edwin Pitman	23	30	11	—14	10.6	2.05
West Waterville	Kennebec	B. F. Wilbur	2, 24	38	19	—11	16.1	2.27
Gardiner	do	R. H. Gardiner	24	40	19, 31	— 3	17.6	2.86
Lisbon	Androscoggin	Asa P. Moore	.....	.....	31	— 4	.....	2.09
Norway	Oxford	Howard D. Smith	2, 8	38	11	—18	14.9	2.00
Cornish	York	Silas West	2	38	12	— 4	16.6	4.10
Cornishville	do	G. W. Guptill	2	35	12	0	17.8	4.13
Averages							15.6	3.05
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	23	32	13	—15	12.7	2.30
North Barnstead	Belknap	C. H. Pitman	24	44	13	3	21.1	2.95
Claremont	Sullivan	Arthur Chase	2, 3	39	13	— 9	18.0	2.65
Shelburne	Coos	F. Odell	13	38	12	— 6	.....	2.50
Averages							17.3	2.60
VERMONT.								
Lunenburg	Essex	H. A. Cutting	2	33	13	—16	12.7	1.88
North Craftsbury	Orleans	Edward P. Wild	3	37	14	— 3	17.1	2.14
Randolph	Orange	Charles S. Paine	3	36	7	—20	15.1	2.52
Middlebury	Addison	H. A. Sheldon	2	37	6	—21	13.4	1.71
St. Albans	Franklin	A. H. I. Gilman	23	37	28	—18	11.7	0.25
Averages							14.0	1.70
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	3, 7, 23	42	10, 13	7	26.0	4.45
Topsfield	Essex	S. A. Merriam	2, 3	39	17	4	20.1	3.46
Lawrence	do	John Fallon	3	41	17	3	21.6	3.06
Georgetown	do	S. A. Nelson	3	44	17	5	22.6	2.41
Newbury	do	John H. Caldwell	3	40	12, 13, 17	4	21.7	.....
Milton	Norfolk	Rev. A. K. Teele	3	45	13, 17	4	22.0	2.91
Brookline	do	Rev. J. B. Perry	25	45	6	— 2	23.6	.....

Table showing the range of the thermometer, &c., for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow
MASS.—Continued.				°		°	°	*In.*
North Billerica	Middlesex	Rev. E. Nason	3	42	19	— 1	21.0	.....
West Newton	....do	John H. Bixby	25	45	18	1	21.9	3.05
New Bedford	Bristol	Samuel Rodman	23	43	10, 13	8	25.4	5.91
Worcester	Worcester	Jos. Draper, M. D	23	39	13	4	21.4	3.27
Mendon	....do	Jno. G. Metcalf, M. D	23	39	13	0	19.6	.....
Lunenburg	....do	Geo. A. Cunningham	8	43	12, 13	2	20.3	3.18
Amherst	Hampshire	Prof. E. S. Snell	3	40	13, 17	0	20.2	3.52
Richmond	Berkshire	Wm. Bacon	24	37	6, 10	— 2	19.1	5.05
Williams College	....do	Prof. A. Hopkins	23	39	28	—10	19.3	2.42
Averages							21.6	3.56
RHODE ISLAND.								
Newport	Newport	Wm. H. Crandall	2, 3, 23	42	10	10	27.4	5.48
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	23	39	10	1	20.7	2.02
Middletown	Middlesex	Prof. John Johnston	3	42	17	0	22.7	3.36
Colebrook	Litchfield	Charlotte Rockwell	7	38	10	— 7	17.4	.....
Groton	New London	Rev. E. Dewhurst	3	52	10, 17	4	23.6	2.90
Averages							21.1	2.76
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh's	3	50	31	— 8	28.4	4.34
South Hartford	Washington	G. M. Ingalsbe	3	42	6	—14	16.5	5.60
Troy	Rensselaer	Jno. W. Heimstreet	3	39	7, 28	— 3	19.5	3.33
Germantown	Columbia	Rev. S. W. Roe	3	42	31	0	19.5	3.10
Garrison's	Putnam	Thomas B. Arden	3	43	10	6	23.0	3.41
Throg's Neck	Westchester	Miss E. Morris	2	42	10	6	25.3	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	23	41	10	6	25.8	4.00
Columbia College	....do	Prof. Chas. A. Joy	23	43	10	14	28.4	2.22
Flatbush	King's	Eli T. Mack	23	41	10	7	25.1	3.41
Newburgh	Orange	James H. Gardiner	4	48	10	3	23.0	3.27
Minaville	Montgomery	Prof. D. S. Bussing	23	32	7	— 7	12.2	3.14
Gouverneur	St. Lawrence	C. H. Russell	23	42	28	—22	12.7	2.00
North Hammond	....do	C. A. Wooster	23	41	28	—12	14.6	1.58
South Trenton	Oneida	Storrs Barrows	23	40	28	— 6	16.0	3.30
Cazenovia	Madison	Prof. Wm. Soule	23	40	5	— 2	18.6	4.45
Oneida	....do	S. Spooner, M. D	23	44	6	— 4	21.9	4.30
Houseville	Lewis	Walter D. Yale	23	40	12, 27	— 7	15.9	2.57
Depauville	Jefferson	Henry Haas	23	38	28	—12	15.9	3.35
Theresa	....do	S. Gregory	23	35	29	—21	.....	2.06
Oswego	Oswego	Wm. S. Malcolm	3	39	28	— 8	20.6	5.49
Palermo	....do	E. B. Bartlett	23	39	28	—23	16.2	4.50
Nichols	Tioga	Robert Howell	4, 23	44	30	— 2	21.7	.....
Geneva	Ontario	Rev. Dr. W. D. Wilson	23	42	28	0	20.9	1.92
Rochester	Monroe	Henry W. Mathews	20	41	28	0	20.8	1.45
Do	....do	W. L. M. Fiske, M. D	20	41	28	0	20.8	1.45
Little Genesee	Allegany	Daniel Edwards	23	42	28	—12	19.4	2.00
Buffalo	Erie	Wm. Ives	23	37	28	1	20.9	2.23
Averages							20.1	3.14
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	4	43	10	3	25.3	1.9

Table showing the range of the thermometer, &c., for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
NEW JERSEY—Con.				°		°	°	*In.*
Newark	Essex	W. A. Whitehead	3	43	10	6	25.9	3.28
New Brunswick	Middlesex	Geo. H. Cook	23	44	31	6	25.1	2.18
Trenton	Mercer	E. R. Cook	2, 3, 4, 24	42	31	10	30.2	4.30
Burlington	Burlington	John C. Deacon	3	48	31	8	30.2	3.20
Moorestown	do	Thos. J. Beans	23	46	31	5	26.7	3.77
Mount Holly	do	M. J. Rhees, M. D	23	47	31	6	27.9	.....
Dover	Morris	Howard Shriver	4	42	10	4	25.2	6.00
Haddonfield	Camden	Samuel Wood	23	45	31	8	27.9	3.32
Newfield	Gloucester	E. D. Couch	4	51	31	1	30.9	.....
Greenwich	Cumberland	R. C. Sheppard	4	46	31	10	29.5	3.57
Vineland	do	John Ingram, M. D	4	46	31	3	26.6	4.42
Averages							27.6	3.60
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	3	50	30	— 8	20.6	2.68
Fallsington	Bucks	Ebon'r Hance	2	44	30	4	27.0	3.50
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	4	45	9, 31	13	30.3	3.49
Germantown	do	Thomas Meehan	4	45	31	4	29.0	.....
Horsham	Montgomery	Miss Anna Spencer	2	42	31	5	26.1	2.20
Dyberry	Wayne	Theodore Day	3, 4	38	11, 17	— 8	17.6	3.13
Whitehall	Lehigh	Edward Kohler	3	42	10, 19	4	24.4	1.75
Parkesville	Chester	F. Darlington	4	44	31	— 2	26.0	2.86
Reading	Berks	J. Heyl Raser	2	44	31	8	27.2	.....
Ephrata	Lancaster	W. H. Spera	1, 2	48	16	4	27.5	1.23
Harrisburg	Dauphin	John Heisely, M. D.	4	43	31	10	27.8	4.09
Ickesburg	Perry	Wm. E. Baker	3	50	9	3	24.3	4.02
Lewisburg	Union	Prof. C. S. James	3, 4	41	10, 31	2	21.3	2.56
Pennsville	Clearfield	Elisha Fenton	3, 23	40	9	— 8	19.2	3.33
Franklin	Venango	Rev. M. A. Tolman	23	42	9, 13, 19	— 1	20.4	.....
Connellsville	Fayette	John Taylor	3, 23	47	13	— 3	24.9	.....
Beaver Seminary	Beaver	Rev. R. T. Taylor	23	45	9	8	27.0	.....
New Castle	Lawrence	E. M. McConnell	23	43	9	4	24.3	.....
Averages							24.7	2.90
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	4	56	10	8	27.0	4.07
St. Inigoes	St. Mary's	Rev. J. Stephenson	4, 24, 27	48	31	10	31.3	4.55
Emmittsburg	Frederick	Eli Smith	1	50	9	8	27.3	2.72
Mt. St. Mary's Coll	do	Prof. C. H. Jourdan	3	44	9	6	26.3	.....
Averages							28.0	3.78
VIRGINIA.								
Cape Charles L. H	Northampton	Mrs. Jean G. Potts	4	59	18	19	33.3	1.11
Surry C. H	Surry	B. W. Jones	4	64	31	13	36.0	.....
Comorn	King George	E. Tayloe	.....	.....	31	— 4	.....	1.17
Lynchburg	Bedford	C. I. Meriwether	5	53	30	16	35.4	.....
Snowville	Pulaski	J. W. Stalmaker	3	52	31	— 8	28.9	1.68
Averages							33.4	4.65
WEST VIRGINIA.								
Romney	Hampshire	W. H. McDowell	3, 4	56	13, 31	10	31.0	.....
Grafton	Taylor	W. H. Sharp, M. D	1	65	12, 30	8	33.5	2.00
Cabell C. H	Cabell	C. L. Roffe	4, 23	58	30	10	33.2	4.90

Table showing the range of the thermometer, &c, for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
				°		°	°	*In.*
W. VIRGINIA—Con.								
Burning Springs	Wirt	Rob't H. Bliven	3	67	30	— 4	32.2	.....
Weston	Lewis	Benjamin Owen	4	60	12, 13	4	28.9	.....
Averages							31.8	3.46
NORTH CAROLINA.								
Goldsboro'	Wayne	E. W. Adams, A. M.	4	70	18	17	40.2	3.20
Oxford	Granville	Wm. R. Hicks, M. D.	4	58	31	12	35.0	3.40
Raleigh	Wake	Rev. F. P. Brewer	4	62	18	12	35.9	4.20
Albemarle	Stanley	F. J. Kron	5	63	18, 31	8	36.1	6.80
Statesville	Iredell	Thos. A. Allison	4	52	18	8	31.4	6.50
Asheville	Buncombe	E. L. Aston	3	61	31	3	33.5	.....
Averages							35.4	4.82
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	3	75	31	22	34.5	2.00
Gowdysville	Union	Charles Petty	8	65	31	12	38.0	.....
Averages							36.3	2.00
GEORGIA.								
Atlanta	Fulton	Chas. Deckner	3, 7	72	30	6	37.0	4.01
Macon	Bibb	Jno. A. Rockwell	7	76	30	15	44.6	7.86
Averages							40.8	5.94
ALABAMA.								
Moulton	Lawrence	Thos. M. Peters, A. M.	3	70	30	14	38.2	5.65
Fish River	Baldwin	W. J. Van Kirk	7	88	30, 31	21	.....	.....
Opelika	Lee	J. H. Shields	3, 4, 7	78	30	12	44.2	.....
Havana	Hale	Sam'l K. Jennings	3	79	30, 31	17	43.1	11.23
Averages							41.8	8.44
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	7	81	31	29	57.6	2.80
Lake City	Columbia	Galen M. Fisher	3, 4	74	31	26	53.2	.....
Averages							55.4	2.80
TEXAS.								
Waco	McLellan	Edw. Merrill, M. D.	2	89	30	15	42.4	0.70
Austin	Travis	J. Van Nostrand	2	87	30	15	46.2	0.36
Houston	Harris	Miss E. Baxter	5	84	30	19	52.0	.....
Averages							46.9	0.53
LOUISIANA.								
New Orleans	Orleans	Robert W. Foster	7	81	30	25	.....	.....
MISSISSIPPI.								
Grenada	Yalabusha	Albert Moore	3, 4, 6	78	30	15	42.7	.....
Natchez	Adams	Wm. McCary	3	75	30	18	46.6	8.16
Averages							44.7	8.16
ARKANSAS.								
Helena	Phillips	O. F. Russell	3	74	29, 30	12	35.7	.....
TENNESSEE.								
Tusculum College	Green	S. S. and Rev. W. S. Doak.	7	57	30	— 4	31.5	.....
Clarksville	Montgomery	Rev. C. F. P. Bancroft	3	66	9, 29, 30	11	30.9	5.03
Memphis	Shelby	Edw. Goldsmith	3	68	30	13	33.0	5.30

Table showing the range of the thermometer, &c., for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
TENNESSEE—Con.				°		°	°	*In.*
Austin	Wilson	P. B. Calhoun	6	68	30	8	33.5	4.50
Elizabethton	Carter	Charles H. Lewis	7	56	31	5	33.1	.....
Averages							32.4	4.94
KENTUCKY.								
Chilesburg	Fayette	Sam'l D. Martin, M.D.	3, 4, 5	54	30	— 2	27.9	4.65
Louisville	Jefferson	Mrs. L. Young	4, 5	55	30	4	29.6	4.29
Danville	Boyle	O. Beatty	4, 5	60	30	1	32.6	3.95
Averages							30.0	4.30
OHIO.								
Steubenville	Jefferson	Joseph B. Doyle	4	45	12	4	26.0	.....
Painesville	Lake	E. J. Ferris	23	40	9, 10	2	20.6	3.43
Milnersville	Guernsey	Rev. D. Thompson	4	50	9, 13	— 6	23.2	9.23
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	23	44	27, 28	— 4	21.5	1.46
Do	do	T. A. Smurr, M. D.	23	45	9, 10, 30	2	22.2	.....
Wooster	Wayne	Martin Winger	4	50	22	— 6	22.9	.....
Gallipolis	Gallia	Alex. P. Rodgers	4	50	30	4	29.4	4.42
Kelley's Island	Erie	Geo. C. Huntington	20, 23	39	30	0	21.7	1.00
Norwalk	Huron	Rev. A. Newton	4	43	9, 30	0	21.9	0.94
Greenwich Station	do	Mrs. M. M. Marsh	4	44	9	— 2	22.7	0.49
North Fairfield	do	O. Burras	23	45	30	— 6	21.0	0.46
Westerville	Franklin	Prof. Jno. Haywood	23	46	30	— 4	20.4	1.81
Marion	Marion	H. A. True, M. D.	4	44	30	— 3	20.8	1.84
Williamsport	Pickaway	John R. Wilkinson	6	50	30	— 2	27.1	6.45
Toledo	Lucas	J. B. Trembly, M. D.	6	40	9, 28	— 1	21.0	1.25
Bowling Green	Wood	John Clarke	23	46	28	—14	22.1	3.25
Kenton	Hardin	C. H. Smith, M. D.	4	59	30	— 4	27.5	2.44
Urbana University	Champaign	M. G. Williams	4	48	30	— 7	21.8	2.44
Hillsboro'	Highland	J. McD. Mathews	6	49	30	— 4	24.2	4.10
Bethel	Clermont	Geo. W. Crane	6	50	30	— 4	24.5	4.25
Cincinnati	Hamilton	R. C. Phillips	6	55	30	— 8	31.3	7.29
College Hill	do	John W. Hammitt	6	52	30	— 4	25.2	8.90
Averages							23.6	3.45
MICHIGAN.								
Monroe City	Monroe	Miss F. Whelpley	23	40	27	— 6	19.5	2.20
Alpena	Alpena	J. W. Paxton	3	37	12	3	20.9	1.15
State Agricult'l Col.	Ingham	Prof. R. C. Kedzie	2	38	28	— 5	19.0	1.47
Litchfield	Hillsdale	R. Bullard	2, 23	35	28	—14	16.4	2.34
Northport	Leelanaw	Rev. Geo. N. Smith	2, 3	34	26	— 4	20.5	2.98
Otsego	Allegan	Milton Chase, M.D.	21	55	27	— 8	23.1	2.00
Holland	Ottawa	L. H. Streng	2, 19	40	26	— 1	23.4	5.24
Central Mine	Keweenaw	Dr. S. H. Whittlesey	2, 3, 5	31	11	— 8	11.4	6.80
Ontonagon	Ontonagon	Edwin Ellis, M. D.	4, 5	34	7, 8	—14	14.0	.....
Averages							18.7	3.02
INDIANA.								
Richmond	Wayne	John Valentine	4, 6	44	30	— 5	21.2	2.57
Aurora	Dearborn	Geo. Sutton, M. D.	3, 4, 5, 6	50	30	— 4	26.0	4.32
Vevay	Switzerland	Chas. G. Boerner	4	60	30	0	29.2	6.20
Muncie	Delaware	G. W. H. Kemper, M.D	4	46	30	— 5	20.5	2.5

Table showing the range of the thermometer, &c., for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
				°		°	°	*In.*
INDIANA—Con.								
Indianapolis	Marion	W. J. Elstun, M. D.	4	48	30	— 3	22.2	2.24
Merom	Sullivan	Thomas Holmes	4	59	29	— 2	23.8	2.30
New Harmony	Posey	John Chappellsmith	3	58	29	5	27.9	3.60
Averages							24.4	3.39
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr	4	41	29	— 7	19.8	1.28
Near Chicago	do	Samuel Brookes	4, 5	40	29	—16	16.8	.....
Golconda	Pope	Wm. V. Eldredge	3	66	30	4	27.8	2.20
Aurora	Kane	A. & E. D. Spaulding	2	44	29	—11	14.4	0.98
Sandwich	De Kalb	N. E. Ballou, M. D	2	42	13, 28	—14	14.0	0.85
Ottawa	La Salle	Mrs. E. H. Merwin	2	47	29	— 6	16.6	1.07
Winnebago	Winnebago	J. W. & Miss Tolman	2	39	13	—13	11.5	0.82
Hennepin	Putnam	Smiley Sheppard	5	46	29	—10	17.7	.....
Magnolia	do	Henry K. Smith	1, 5	46	29	—13	18.6	1.70
Rochelle	Ogle	Daniel Carey	2	42	13	—16	12.0	.....
Wyanet	Bureau	E. S. & Miss Phelps	2	50	29	—12	15.6	0.56
Tiskilwa	do	Verry Aldrich	5	44	29	—10	17.2	0.45
Elmira	Stark	O. A. Blanchard	2	49	29	—13	16.3	0.34
Peoria	Peoria	Frederick Brendel	5	51	29	—10	18.4	0.77
Springfield	Sangamon	G. M. Brinkerhoff	4	52	29	— 9	18.6	.....
Waterloo	Monroe	H. Künster	3	63	29	— 2	26.2	.....
Dubois	Washington	Wm. C. Spencer	4	56	29	— 3	23.0	2.15
Galesburg	Knox	Prof. W. Livingston	4	48	29, 30	—10	16.4	0.30
Mount Sterling	Brown	Rev. A. Duncan	3, 5	54	29	—10	19.4	.....
Andalusia	Rock Island	E. H. Bowman, M. D	19	43	29	— 8	15.0	.....
Augusta	Hancock	S. B. Mead, M. D	5	55	29	—10	19.5	0.93
Ridge Farm	Vermillion	Dr. B. C. Williams	5	48	30	—10	20.6	.....
Marengo	McHenry	O. P. Rogers	1	43	13	— 9	15.5	1.57
Averages							17.8	1.07
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	2, 5, 6	37	9, 13	—12	15.9	1.64
Plymouth	Sheboygan	G. Moeller	5	38	12, 13	—17	12.0	1.90
Milwaukee	Milwaukee	I. A. Lapham, LL.D	7	43	12	— 9	16.4	1.29
Waupacca	Waupacca	H. C. Mead	4	38	12, 13	—20	13.2	.....
Embarrass	do	E. Everett Breed	4, 5, 6	32	13	—19	12.4	3.20
Edgerton	Rock	Henry J. Shintz	4	44	16	—14	.....	.....
Baraboo	Sauk	M. C. Waite	4	34	12, 13	—20	9.7	3.31
New Lisbon	Juneau	J. L. Dungan	2, 3, 4, 5, 22	34	12	—33	9.6	.....
Rocky Run	Columbia	W. W. Curtis	2	38	12	—18	14.2	1.44
Galesville University	Trempealeau	Wm. Gale, A. B	3	29	12	—40	4.7	1.60
Bayfield	Bayfield	Andrew Tate	6	34	7, 8	—22	9.1	.....
Averages							11.7	2.05
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	5	31	12	—39	4.5	1.71
Minneapolis	Hennepin	Wm. Cheney	3, 5	28	12	—40	3.9	1.96
Sibley	Sibley	C. W. and C. E. Woodbury.	3	30	13	—36	2.4	0.76
New Ulm	Brown	Charles Roos	1	34	12, 13	—30	3.8	0.86
Averages							3.7	1.32

Table showing the range of the thermometer, &c., for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
IOWA.				°		°	°	*In.*
Clinton	Clinton	Dr. P. J. Farnsworth	5	40	16	— 6	14.8	0.75
Davenport	Scott	D. S. Sheldon	5	44	29	—12	13.2	0.38
Dubuque	Dubuque	Asa Horr, M. D	5	36	16	—12	12.4	0.48
Monticello	Jones	M. M. Moulton	5	40	29	—16	11.1	0.30
Guttenberg	Clayton	Jas. P. Dickerson	5	39	13	—22	8.8	0.63
Ceres	do	Jno. M. Hagensick	5	36	13	—15	12.8	.....
Mount Vernon	Linn	Prof. A. Collins	5	40	29	—15	11.5	.....
Iowa City	Johnson	Prof. Theo. S. Parvin	5	40	29	—16	13.4	0.10
Independence	Buchanan	Geo. Warne, M. D	3,5	38	29	—18	9.7	1.65
Near Independence	do	Mrs. D. B. Wheaton	3	39	13	—22	5.9	0.80
Waterloo	Black Hawk	T. Steed	5	40	16,29	—15	11.0	.....
Marble Rock	Floyd	H. Wadey	3,5	36	13	—20	7.9	1.15
Iowa Falls	Hardin	N. Townsend	3	40	29	—16	7.7	1.64
Algona	Kossuth	Ph. Dorweiler	3	35	29	—20	5.1	0.99
Do	do	James H. Warren	1	33	29	—19	5.9	0.70
Dacotah	Humboldt	Wm. O. Atkinson	3	40	29	—20	7.4	.....
Boonesboro'	Boone	E. Babcock	4	37	29	—18	8.1	0.43
Fontanelle	Adair	A. F. Bryant	4	48	29	—18	11.7	0.65
Logan	Harrison	Jacob F. Stern	4	48	29	—16	14.3	0.70
Whitesboro'	do	David R. Witter	1	44	29	—20	9.1	0.80
Fort Dodge	Webster	C. N. Jorgensen	3	37	29	—15	9.7	0.82
Muscatine	Muscatine	J. P. Walton	5	47	29	—12	13.6	0.30
Rolfe	Pocohontas	Oscar I. Strong	3	45	29	—26	8.5	2.00
Averages							10.2	0.75
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	3	61	17,29	5	26.2	1.23
Allenton	do	A. Fendler	3	67	29	— 2	24.2	1.69
Hermitage	Hickory	Miss Belle Moore	2	60	21	— 5	23.5	0.63
Rolla	Phelps	Homer Ruggles	4	67	29	0	26.3	1.33
Harrisonville	Cass	John Christian	4	60	29	— 8	21.1	0.54
Oregon	Holt	Wm. Kaucher	4	62	29	—12	17.4	1.00
Canton	Lewis	Geo. P. Ray	5	56	29	—10	18.1	0.60
Averages							22.4	1.00
KANSAS.								
Leavenworth	Leavenworth	Dr. J. Stayman	2	65	17,29	—10	18.3	0.56
Olathe	Johnson	Wm. Beckwith	2	57	29	—10	16.0	0.60
Atchison	Atchison	Dr. H. B. & Miss Horn	4	60	17	—11	17.1	0.79
Holton	Jackson	Dr. James Walters	4	58	29	—11	18.3	0.45
State Agricult'l Coll.	Riley	Prof. B. F. Mudge	2	61	29	—12	18.5	0.30
Council Grove	Morris	A. Woodworth, M.D.	2	60	29	—10	21.0	0.90
Baxter Springs	Cherokee	Ingraham & Hyland	5	64	29	— 2	24.6	0.46
Averages							19.1	0.58
NEBRASKA.								
Elkhorn	Washington	John S. Bowen	1	45	29	—15	11.7	.....
De Soto	do	Charles Seltz	1	43	29	—19	11.5	0.70
Glendale	Cass	Dr. A. L. & Miss Child	4	52	16	—26	11.1	0.85
Dakota	Dakota	H. H. Brown	1	50	27,29	—18	10.8	0.70
Omaha Agency	(Reserve)	Rev. Wm. Hamilton	1,3	49	29	—12	14.8	0.80
Averages							12.0	0.76

Table showing the range of the thermometer, &c., for January—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
UTAH TER.				°		°	°	*In.*
Great Salt Lake City	Great Salt Lake	W. W. Phelps	1	50	18	1	24.3	2.44
Wanship	Summit	Thomas Bullock	26	44	16	—18	14.1	1.45
Averages							19.2	1.95
CALIFORNIA.								
Monterey	Monterey	C. A. Canfield, M. D.	1	64	8	31	47.1	7.65
Antioch	Contra Costa	F. M. Rogers	1	58	8	31	43.3	7.54
Averages							45.2	7.60
OREGON.								
Corvallis	Benton	A. D. Barnard	2	46	11, 29	0	22.9	
MONTANA.								
Helena	Edgerton	A. C. Wheaton	1	36	9	28	2.7	1.00

NOTES OF THE WEATHER—JANUARY, 1868.

[Compiled in the Department of Agriculture from the reports of observers for the Smithsonian Institution.]

Steuben, Maine.—The coldest January, except two, on my record.

Gardiner, Maine.—The month colder by 0°.7 than the January average of thirty-two years; ground frozen forty-two inches deep.

Cornish, Maine.—Average temperature for the month 0°.79 above that for thirty-five years; depth of snow fall for the month forty-three inches.

Stratford, New Hampshire.—Thermometer not above 32° the whole month; snow twenty-seven inches deep on the level.

Claremont, New Hampshire.—A cold month, without a severe blow or thaw.

Lunenburg, Vermont.—Sleighing excellent all the month; springs and streams the lowest known for many winters, some apparently frozen dry; ice on ponds and rivers two feet thick, very clear and solid.

Randolph, Vermont.—About three feet of snow fell during the month, and is now twenty-two inches deep on open plains, deeper in woods; no extreme cold, neither much thawing.

Kingston, Massachusetts.—A cold, stormy month; snow fell on twelve days.

Topsfield, Massachusetts.—Ice twenty-two inches thick, superior quality on 1st; the month closes cold with twenty-two inches of snow, and ground frozen eighteen inches deep.

Georgetown, Massachusetts.—A month of no extreme in temperature, but steady cold made it severe; no storms, only one rain, and lack of water in wells and streams.

North Billerica, Massachusetts.—Snow about twelve inches deep on 31st; splendid sleighing.

New Bedford, Massachusetts.—Sleighing unusually prolonged for this locality.

Richmond, Massachusetts.—A violent gale all day, with rain and hail, on the 1st; on the 12th, p. m., tempest from northwest; sleighing unusually good through the month.

Newport, Rhode Island.—Snow and rain on the 4th, 20th, 28th and 29th, and snow on the 8th.

South Hartford, N. Y.—Month colder than for many years; sleighing good throughout; snow 18 inches on a level; ground frozen 30 inches. That portion of Lake Champlain known as "Broad Lake" has been frozen over before the 15th of January but thrice in fifty-two years, viz., January 10, 1835, January 11, 1859, and January 7, 1868. It has been entirely open all winter but five times since 1800, viz., 1808–'09, 1826–'27, 1833–'34, 1841–'42, and 1849–'50. March 4, 1819, is the latest date of closing in fifty-two years. The earliest opening of navigation was March 1, 1851; and the latest, April 30, 1847.

Garrison's, N. Y.—Month more than usually dry and cold.

Columbia College, New York city.—The month very cold, especially the first half.

Depauville, N. Y.—Snow much drifted this month, but about 12 inches deep on a level. Wells and streams low; ground frozen hard under the snow.

Palermo, N. Y.—Many snow storms during the month—45.25 inches fell, in all.

Nichols, N. Y.—On 21st hardest snow storm in many years; more snow fell in a given time, in all about 15 inches in 14 hours. Susquehanna closed with ice since the 10th.

Little Genesee, N. Y.—An unusual month; no rain in measurable quantity; only one day of thaw; good sleighing all the time, and streams low, and many springs and wells dry.

Buffalo, N. Y.—Mean temperature of the month 7° below the Januarys of ten years past. Lake Erie closed on the 9th. Good sleighing all the month.

Newark, N. J.—A large proportion of fair weather this month, with snow and some rain distributed between.

Dover, N. J.—The month much warmer than in 1867.

Greenwich, N. J.—Month uniformly cold, yet the average nearly 6° above that of last year. From 25th to 30th the sun did not shine five minutes.

Fallsington, Penn.—Delaware river closed on 1st, the second time; opened on 6th; closed third time on 10th. The month has been 3° colder than the average here.

Dyberry, Penn.—Snow fall during the month 31 inches—is 2 to 3 feet deep in the woods.

Franklin, Penn.—Snow fall this month 20.7 inches—now 20 inches deep on the ground.

New Castle, Penn.—Temperature of the month uniformly low, without reaching an extreme. About 18 inches of snow fell. Wells still dry.

Woodlawn, Md.—Susquehanna closed the second time on 10th.

Comorn, Va.—First week of the month wet and mild; the remainder very cold, with much snow—all very unfavorable for farm work. The Rappahannock was frozen over several times.

Snowville, Va.—New river frozen over on 11th; open on 24th; frozen over again on 30th.

Albemarle, N. C.—December snows nearly gone on 3d. The month unfavorable for farm work—ground either too wet, or frozen hard.

Statesville, N. C.—December snows nearly gone on 8th.

Atlanta, Ga.—Lightning and thunder in northwest at 3 a. m. on 8th. Thunder in northwest at 9 a. m., and lightning without thunder in southeast at 10.30 p. m. on 20th. Coldest morning on 30th since February 14, 1866.

Moulton, Ala.—Ground frozen 4 inches deep, and ice thick enough for skating on 30th. The whole month wet and cold—but one perfectly fair day.

Opelika, Ala.—The first snow this season on 29th; fell rapidly for four hours. 31st, some snow left on northern exposures.

Gordon, Ala.—On 20th disagreeably warm; severe storm from southwest at night, with high wind, vivid lightning, and heavy thunder—twenty-four distinct peals were counted. On 24th unusually warm, with copious showers, thunder and lightning from east. Thunder showers on 27th, 28th, and 29th, followed by severe frost on night of 29th. Plum trees in full bloom.

New Orleans, La.—1st, ice one-eighth of an inch thick. 2d, soft, warm morning—peaches size of hazel nuts. 3d, mosquitoes troublesome. 6th, air clear and sultry—unseasonable weather. 10th, sleet—no frost—dull, wintry weather. 14th, strawberry vines in blossom; many fig-trees in favorable locations have ripened their fruit. 17th, cold, damp, wintry weather. 21st, delightful spring morning. 25th, hoar frost. 31st, ice quarter of an inch thick.

Houston, Texas.—21st, white frost. 28th, hail and rain, with lightning and thunder.

Grenada, Miss.—Heavy white frosts on 15th, 18th, 22d, 24th, 25th, and 31st. Copious rains, accompanied with heavy thunder, on 19th and 22d.

Natchez, Miss.—On 28th, at 10 a. m., sprinkling; at 12.50 p. m., sleet; at 1.30 p. m., distant thunder in southwest; at 1.45 p.m., thunder peal overheard; 2.25 p.m., snow till 9 or 10 p. m. Two inches of snow on the ground on 29th. Extremely cold and clear on 30th.

Memphis, Tenn.—Month noted for continued cold; mean temperature 4° 06′ lower than in 1867, and 8° 16′ lower than in 1866.

Chilesburg, Ky.—The year commenced with rain, hail, and snow. On 6th, violent thunder storm and strong wind from south and southeast. On 11th, ice was 3 inches thick on streams; on 13th, 4½ inches thick. More or less snow fell on 1st, 8th, 9th, 14th, 16th, 17th, 20th, 21st, and 27th.

Salem, Ky.—20th.—Thunder and rain on the 6th, and cold ever since, with abundance of sleet on the ground.

Norwalk, Ohio.—The month was steadily cold, though the average is above January of last year. Wells continue dry.

North Fairfield, Ohio.—Month steadily cold; good roads, with but little sleighing.

Williamsport, Ohio.—Uncovered ground frozen 25 inches—under snow 6 inches deep it is frozen only 15 inches.

Toledo, Ohio—The drought continues. The month has been steadily cold.

Bowling Green, Ohio.—Remarkably cold month; no severe storms, nor wholly clear days; six snow-storms; in all 15.5 inches fell.

Bethel, Ohio.—On 6th, distant thunder in southwest, at 6 and 11 a. m.

Alpena, Mich.—Lake covered with drifting ice on the 8th.

Litchfield, Mich.—The monthly mean nearly a degree higher than last year; snow eleven inches in woods, but very dry and loose. Springs remain low.

Northport, Mich.—January, on the whole, has been of even temperature and agreeable.

Richmond, Ind.—4th, west wind, but day remarkably clear and warm. 17th, coldest morning this winter. 30th, still colder.

Aurora, Ind.—Thunder-storm on 6th, at 3 a. m., with diffused lightning; atmosphere foggy; rain all day. 20th to 21st, snow-storm; 7.75 inches fell.

Vevay, Ind.—On 6th, heavy rain, with thunder, from west, at 2.30 a. m. On 20th, violent snow-storm from northwest; snow wet and heavy; broke down limbs of many trees. 31st, Ohio river running heavy ice since 27th; navigation dangerous and nearly stopped.

Aurora, Ill.—Coldest steady weather known here in twenty years; farmers still inconvenienced in watering stock.

Hennepin, Ill.—Month regular, free from storms and sudden and extreme changes, and, except scarcity of water in some places, pleasant and healthy for man and beast.

Tiskilwa, Ill.—Steadily cold and dry month; cisterns and wells nearly all dry; snow about two inches deep, but sleighing good since 14th.

Waterloo, Ill.—A heavy thunder-storm, with rain from northwest to southeast, on night of 5th and 6th.

Mt. Sterling, Ill.—Frost out of ground, and farmers ploughing on 3d; thunder-storm from southeast, with considerable hail and vivid lightning about 4 p. m. on 5th in the evening; lightning visible in northwest horizon. On 6th, thunder-storm, with hail and sleet from southwest, at 6 to 7 a m.

Augusta, Ill.—Thunder-storm of sleet and snow at 6 to 6.30 a. m., on 6th.

Plymouth, Wis.—Unusually steady, but not severe cold weather, with just snow enough to make good sleighing.

Waupacca, Wis.—Good sleighing all the month; no drifting of snow.

Edgerton, Wis—Very cold month, with little rain or snow.

Baraboo, Wis.—Month remarkable only for continued mild weather for this high northern latitude. Continuous good sleighing all the month.

St. Paul, Minn—The coldest January for twelve years.

Sibley, Minn.—The coldest January since I kept record.

Clinton, Iowa.—A uniformly cold month, without much rain or snow; wells drying up; ice in river twelve inches; ground frozen eighteen inches.

Monticello, Iowa.—Very pleasant month; no rain or mud; little severe cold, but for last three months very dry. In this city not one well in twenty has a full supply of water.

Muscatine, Iowa.—The coldest and dryest January for many years.

Marble Rock, Iowa.—Finest sleighing this winter I ever saw; just snow enough to keep you from the ground.

Algona, Iowa.—The month one of the finest for winter business in many years; remarkable for steady cold, but not so low a degree was reached as usual.

Hermitage, Mo.—Since the 5th, the month has been steadily cold, without wind, rain, or snow.

Atchison, Kansas.—Missouri river closed on the 7th, and since the 9th teams cross on the ice.

Holton, Kansas.—No rain this month; ground very dry; streams frozen up and water very scarce; hard weather on what grain escaped the grasshoppers.

Manhattan, Kansas.—The Kansas and Blue rivers froze over for the first time this winter, on 5th and 6th.

Baxter Springs, Kansas.—Ground commenced freezing on 6th; now (31st) frozen four inches, and ice on ponds seven inches thick.

Omaha Agency, Neb.—Steadily cold month; sledding generally good; ground on the north side of a hill frozen five feet deep.

Great Salt Lake City, Utah.—Rain and snow on 1st; snow 3d, 4th, 7th, 11th, 14th, and 21st; hoar frost on 27th, 28th, 30th, and 31st.

Wanship, Utah.—Snow on 1st, 2d, 4th, and 25th; thunder on 2d.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

MARCH, 1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

WASHINGTON, D. C., *March* 31, 1868.

SIR: I herewith report the matter for publication in the monthly issue for March, as indicated by the following captions: Special Statistics of Farm Resources and Products; Number and Prices of Farm Stock; Universal Exposition of Agricultural Implements; The Cotton Supply; Agriculture in New Jersey; Pork Packing in 1867–'68; Business and Resources of Denver; Farm Statistics of Great Britain; Culture and Products of the Vine in Europe; and Meteorology.

Respectfully,

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
Commissioner of Agriculture.

SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

Continued.

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?

2. What is the average value of wild or unimproved tracts of land; and what is the character, quality, and capabilities of such land?

3. What marked or peculiar resources have you in soil, timber, or minerals; and what is the state of their development, or inducement for attempted development?

4. What crops, if any, are made a specialty in your county; and what facts illustrating their culture, quantity, and the profit derived?

5. What kinds of wheat are cultivated; and which of them are preferred; and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?

6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?

7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

MISSISSIPPI.

1. Returns from Mississippi indicate a large decrease in value of farm lands as compared with the valuation of 1860. De Soto and Tippah, in the extreme northern part of the State, show a decrease of 75 and 50 per cent., respectively, attributed almost entirely to the unsettled condition of political and financial affairs, and the disastrous results of the cotton culture of the past. In De Soto, one year ago, farming lands would sell for about three-fourths their value in 1860, but the financial distress, consequent upon the fall of cotton prices, has thrown a

great deal of land on the market, and reduced the price to very low figures, more than three-fourths of all the land in the county being for sale, and much of it must be disposed of at forced sale, it having been mortgaged for supplies, &c. The same may be said of many other counties, largely engaged in cotton culture. Along the central tier of counties, Kemper reports a decrease of 75 per cent.; Lauderdale, 70 to 80; Winston, 66 to 75; Attala, 66; Leake, 50; Washington, 75; Yazoo, 66; Madison, 60 to 70; Hinds, 75—with few sales at any price. In Pike county, in the south, bordering on Louisiana, farming lands have fallen in value 50 per cent., except those adjacent to railroads, while in the adjoining county of Marion the decrease is set down at 75 per cent. The average depreciation throughout the State is 65 per cent.

2. Half of the land of Mississippi is not included in farms, and only a third of the area in farms has ever been at one time under improvement. In the best cotton districts, cultivated lands have been comparatively high, but few were ever held at their intrinsic value, on account of the extent of the unoccupied area in the southwest. In the southeastern portion of the State, between the capital, Jackson, and Mobile, in Alabama, the population is sparse, the land mostly is unentered, the soil sandy, with a small extent of rich creek bottoms, the price of unimproved tracts varying from twelve cents to one dollar per acre. The growth is composed of oaks, hickory, gum, cypress, and long-leafed pine, the latter predominating, of great height and size, of industrial importance in connection with turpentine making and lumbering. The soil, like other sandy loams, is easily worked and productive for a few years, becoming exhausted with constant cropping and no fertilizing. A bale of cotton per acre has been obtained upon such soil; sweet potatoes in unlimited quantities are easily produced, and might prove a source of large revenue under the new mode of slicing and drying for distant markets; the castor-oil bean grows finely here, and might be made a source of profit and improvement to the soil; peaches are a sure and abundant crop, beginning to bear in three years from the seed; and wool-growing will prove remunerative and a valuable auxiliary to tillage farming, wild grasses everywhere abounding, succulent and rank in growth by the middle of February.

The water is excellent, and the climate healthy. All that is needed to start this region upon a career of prosperity is a railroad to the Gulf coast from some point on the Mississippi Central. With such a road, land now a drug at 12½ cents per acre would be greedily taken at $1, and eventually, with improvements, would be cheap at $20. Similar lands, though generally better, on the line of the New Orleans, Jackson and Great Northern road, west of Pearl river, are now attainable at $5 to $10, or $20 near stations, and are bargains at those prices. In the northern part of the State, unimproved tracts average about $1 per acre; in Hinds county, $2 50; in Madison, $2; in Washington, on the river, fine Mississippi bottoms, perhaps unsurpassed in the world, $5 per acre. On the line of the Mobile and Ohio railroad, $2 50 is a common price. The Hinds and Madison county unimproved lands will yield 300 pounds ginned cotton, 25 bushels of corn, or 200 bushels of sweet potatoes per acre without manure. Productive tracts in Yazoo can be purchased for 50 cents per acre. In De Soto are some 60 sections of "Mississippi bottom" at $4 or less per acre.

The following statement concerning wild lands in Pike county is made by Wm. H. Garland, correspondent for that county:

The average value of wild or unimproved lands, within a circuit of three or four miles of a railroad depot, is about $5 per acre, but taking the whole county it is about 50 cents per acre. The general surface of the county is undulating, marked by long leading ridges, which divide the water-courses. The bottom lands are hommock, and are very productive except where there is too much sand. The following analysis of pine upland, at Summit, Pike county, will show the general character of the hill lands. This analysis is from as poor

a ridge as is in the county; depth, nine inches; vegetation, long-leaf pine, post oak, Spanish red and common red oak; color of soil, yellowish buff—somewhat ashy:

Insoluble matter, chiefly fine sand	89.801
Potash	0.218
Soda	0.076
Lime	0.034
Magnesia	0.806
Brown oxide of manganese	0.072
Peroxide of iron	2.402
Alumina	3.783
Phosphoric acid	0.036
Sulphuric acid	0.038
Organic matter and water	3.446
	100.712

The following was taken directly under the preceding analysis of pine upland subsoil; depth, nine to twenty inches; vegetation, same as preceding; soil, rather sandy loam; color, orange yellow:

Insoluble matter, clay and fine sand	77.931
Potash	0.266
Soda	0.072
Lime	0.152
Magnesia	0.352
Brown oxide of manganese	0.091
Peroxide of iron	5.456
Alumina	11.870
Phosphoric acid	0.043
Sulphuric acid	0.035
Water and organic matter	3.261
	99.529

This analysis shows the subsoil to be well adapted to retain moisture and manures. In consequence of the sparse population that was in the county until the construction of the New Orleans and Jackson railroad, the woods were burnt once or twice a year, and all the vegetable matter was consumed. Since the practice of burning the woods has ceased the lands are rapidly improving. While these lands, under deep culture and proper management, become average farming lands, they are at all times admirably adapted to the production of peaches and grapes."

3. The southern portion of the State, west of Pearl river, is very similar in character of soil to western Tennessee. The surface is a loam, enriched with humus, underlaid with a stiff clay intermixed with loam, beneath which is a stratum of sand and gravel. Numerous water-courses drain bottom lands, varying from a few rods to a mile in width, still richer in plant food, and enduringly productive. This region, like that east of Pearl river, is well wooded with several species of oaks, hickory, beech, poplar, cypress, magnolia, &c., from which considerable lumber has been profitably manufactured. The soil in Hinds, Warren, and Madison contains limestone and marls, and is exceedingly productive. Much of the soil in the northern counties is very productive, and from Vicksburg to Memphis its fertility is unsurpassed, and its timber of enormous growth. Some of these counties report no minerals, "not even a grain of sand," the soil being an unmixed alluvial deposit of unknown depth.

Our correspondent in Pike county says:

The altitude of this place and some of the adjoining hills being 500 feet above the gulf, gives the pine a closeness of texture that makes it very valuable. These forests will afford an average of 10,000 feet of lumber to the acre. Saw-mills in the range of transportation were doing well until the prostration of the country. Now, as the lumber cannot be sold for cash, there is not enough capital in the country to run the mills, and most of them are idle.

4. Cotton is the only specialty of agricultural production. Mississippi has taken the lead as a cotton-growing State, and at one time produced one-fourth of the cotton of the United States. Our correspondent in De Soto county, in giving the local production of cotton for the years subsequent to and preceding the war,

illustrates very fairly the proportionate product of the whole cotton-growing belt in those years. He says:

The yield in 1860 was 40,000 bales; in 1866, 16,000; and in 1867, about 20,000. In 1866, the culture of cotton yielded a fair profit; in 1867 not one pound has paid the cost of production.

He further says:

Wheat grows well here, and can be produced in quantities to yield a good profit—the average yield being about ten bushels per acre. Our best lands yield from fifteen to twenty bushels, and by manuring a greater yield may be realized from average lands. But wheat and cotton cannot be grown by the same set of hands, because the sowing season of wheat conflicts with the picking of cotton, and the harvesting of wheat comes at the most important season for working and thinning the cotton plant, a few days in the early part of June being the most important of any in the whole cultivating season.

5. In the rich alluvial soils of Washington county "wheat was grown during the war, and its yield was thirty bushels per acre." White and red varieties have been grown to some extent in Yazoo; white preferred, as less liable to rust. In Leake a preference is given to the hardier red wheat. Red wheat is preferred in Winston. In Pike little attention is paid to wheat, "though the grain is plump and the bran is thinner than in more northern latitudes." In De Soto "wheat has never been to any extent an article made for market, though the county has two or three times before 1860 sent the first to the St. Louis market. In 1860 fully half the flour consumed was grown here; in 1866 and 1867 very little was grown, though the land in wheat in 1867 yielded a good crop. A very large breadth of land is now in wheat." The usual time of sowing is between the 15th of October and first of November, though many sow in the early part of October, and some in the latter portion of September. The time of harvesting is generally the last week in May; early varieties, with good season, are cut somewhat earlier. There is no such thing as drilling wheat known in the State, unless as a rare exception. No case of drilling is noticed in the reports. The culture is primitive, if not rude. In Winston the wheat is ploughed in after sowing, without any preparation whatever. In Yazoo it is reported that the ground is ploughed before sowing, and then harrowed in. In Attala the first process is sowing, followed by ploughing and harrowing. Other counties adopt these various modes of culture.

6. In De Soto returns represent that "our indigenous grasses are 'Nimble Will' and crab grass, the latter a fine juicy grass which comes up in May, and grows with great luxuriance on ploughed lands until frost, and may be cut two or three times. It comes up after wheat, and by the use of manure, such as plaster, could be cut once or twice after harvest, and make a good yield. It is equal to any hay in the world when properly saved. It is an annual and our finest native grass. 'Nimble Will' grows only on rich fresh land. For summer grazing we have nothing equal to the 'Bermuda grass,' a joint grass which has no seed. Except under very favorable circumstances it does not get high enough to cut for hay, but no amount of grazing hurts it; it will grow on until frost, no matter how hot or dry the season may be. Most persons fear it as too difficult to eradicate; many think it the finest grass of the south" The length of the season is variously stated, from 6 to 12 months. The fact is, that stock are never fed to any appreciable extent, with the exception of horses and mules. Sheep and cattle pick up their living in the winter months, as in summer. It is true that sheep and horned stock, as well as horses, are sometimes treated to occasional winter pasturage upon rye or barley sown in September. With this help it is possible to keep large flocks of sheep, with little expense; and other kinds of farm animals may be brought through the winter in good condition without other feed. The price of pasturage is estimated at very low rates; in some counties as low as $2 or $3 per season, while others range higher, up to $1 per month.

7. Figs and peaches everywhere abound, growing rapidly and bearing pro-

fusely and surely. Until lately no profit was derived from them, and now only on the line of railroad running lengthwise through the State. Formerly peaches were pecuniarily profitable only in pork-making. The crop is very sure in the southern part of the State; in the northern it is sometimes injured by frosts. Apples do pretty well, if kinds are selected which are suited to the climate. Small fruits produce in great abundance. The pear is apt to blight, but is favorably mentioned in some localities. Grapes do well in the poorest soils, and are free from disease. The Hartford, Prolific, Lenoir, Diana, Concord, and Catawba are mentioned with approval in the southern part of the State. Our correspondent in Washington says:

The peach succeeds here remarkably well; the trees are often from a foot to 15 inches in diameter, and I know some 18 years old. One tree will yield more fruit than four in New Jersey.

TEXAS.

1. The decline in the value of farm lands in Texas since the census of 1860 appears not so great as in most of the southern States, though the same causes which have been active in depreciating real estate in the latter have been seriously felt in many counties of Texas. Anderson and Victoria report an average decrease of 70 to 80 per cent.; Dallas, Falls, Nacogdoches, Goliad, Blanco, De Witt, Colorado, and Lavaca, about 50 per cent.; Collin, Cherokee, and Hardin, 25 to 33 per cent.; Houston and Navarro, 25; Ellis, 20; Williamson, 10 per cent. Bell, Gillespie, Lampasas, Burnet, Nueces, and Cameron report no material change since 1860, while Washington reports a general increase of 5 per cent., though in some localities it is over 100 per cent., and Hays and Coryelle about 10 per cent. From the estimates of reporters the average decline in values of farm lands in the entire State is from 25 to 30 per cent. Many correspondents express the opinion that the depreciation is but temporary, and that lands generally will soon command the prices of 1860. Our Hopkins reporter says:

If the cotton crop had been good, or if it had brought a good price, I think lands would now stand as high as before the war; but as it is, they are 25 per cent. lower.

From Fayette, one of the central counties, our reporter writes:

In 1849 the general assessed value of lands averaged $1 33 per acre; 1850, $1 24; 1851, $1 70; 1852, $2 33; 1853, $2 35; 1854, $2 70; 1855, $2 84; $1856, $3 23; 1857, $3 44; 1858, $4 97; 1859, $4 23; 1860, $5 42; 1861, $7; 1862, $6 15; 1863, $6 27; 1864, $5 83; 1865, $4 23; 1866, $4 50; 1867, $5 50. Total number of acres assessed 400,000, valued at $2,200,000 in 1867. Average of improved lands $10 per acre.

From Cameron county, the extreme southern point of the State, our correspondent writes:

Farm lands as they exist in other parts of our country are never sold here. The only lands worked are the river bottoms, and as our lands were originally granted to settlers and sold to purchasers by the authorities of Spain and Mexico, previous to the extension of our boundary to the Rio Grande, they were donated in tracts or rights containing on an average about 4,500 acres, with an average frontage on the river of about 1,000 yards. These lands are held by the descendants of the original settlers and their assignees, and where they remain in common or have been partitioned the right of the heir or assigns bears the proportion in frontage to the original tract that the heir bears to the original grantee. Many of the families have been very prolific, and it is not rare to find a person who owns from 10 to 15 yards river front, with a depth of 15 miles. The consequence is, if a man wishes to purchase a farm of 300 or 400 yards frontage on the river, he must buy 1,200 to 2,000 acres of land, 19-20 of which is wild land. Such lands are worth at present about the same as in 1860.

2. Wild or unimproved lands range in price from 12½ cents to $10 per acre, and embrace a very large proportion of the total area of the State, less than two per cent. being under cultivation in 1860, the census figures standing: improved land in farms, 2,650,781 acres; unimproved land in farms, 22,693,247 acres; wild or waste areas, (including water areas, &c.,) 126,541,412 acres. These lands, when owned by the State, may be had for the price of the certifi-

cate issued from the land office at Austin. Where lands are held by individuals under Spanish or Mexican grants, they may be bought in large tracts as low as 12½ cents per acre, while small tracts held under patents from the State are held at 50 cents to $1 per acre. As a matter of course much of this class of lands is equal to any under cultivation, and capable of producing as good crops as can be raised in the State. Being found in almost if not all the counties in proportions greater than the improved lands, these tracts possess the peculiarities of soil and resources common to their respective locations. In Hopkins county, in the northern part of the State, the average price is about $3 per acre, the southern and eastern portion being timbered, the northern and western prairie. Ellis, Navarro, and Dallas, $1 to $5; soil black, waxy, capable of producing large crops of corn, wheat, rye, oats, barley, cotton, tobacco, &c. Anderson, value nominal, not exceeding 50 cents per acre, and capable of producing 1,000 pounds cotton to the acre, 40 bushes corn, 20 bushels wheat, 30 bushels oats. Hardin and Cherokee, $1 to $2; either timber or prairie, much of it very fertile. Houston, $1; will produce 25 bushels corn or 900 pounds seed cotton to the acre. Trinity, generally held at $2 to $4, some large tracts to be had at 50 cents; lands good for cotton, corn, potatoes, tobacco, sugar, rice, &c. Falls, $3 per acre, suited to corn and cotton. McLennan, in tracts of 160 acres $2, and $1 50 for larger tracts, one-third timber, two-thirds prairie, rich in quality. Bell county, $3, rich bottoms with or without timber, black loam with or without sand. Williamson county, $1 to $5 per acre, claimed to be equal to the best in Illinois, the soil on the prairies ranging from 3 to 15 feet in depth, underlaid with a species of potter's clay, 90 per cent. good tillable land. Washington, $5 for light sandy soil, fitted for fruit culture, and $10 for good black land suitable for cotton. De Witt and Goliad, 50 cents to $5, embracing all varieties from timber bottom and rich valley prairie, to light sandy post-oak and sandy upland prairie. Cameron has much back land that may be purchased at 12½ cents per acre, but generally in large tracts, five leagues, (4,428 acres,) or else in undivided rights in tracts of that size or larger; and even though the right be not over an acre, the owner has the run of the whole tract, in some instances over 100 leagues.

3. The resources of this State have as yet been but slightly developed beyond the capabilities of the soil and the extent and quality of her timber. Of the former extracts from the reports of a few counties will give the reader a general idea in the whole State. Grayson county, in the north, reports: "This is one of the best counties in the State, the land being capable of producing almost all classes of crops, cotton, corn, wheat, rye, oats, &c." Collin: "Soil uniformly deep, jet black, very rich." Burnet: "Our soil is peculiar to the culture of such species of cactus as furnish sustenance to the *cochineal*, which insect, during certain months of the year, may be seen in great numbers on a broad-leaved variety (*opuntia*) which thrives here in great abundance even on the most sterile lands, affording at the same time a valuable food for cattle." Williamson, in the central part of the State: "Our soil is well adapted to the production of corn, wheat, barley, oats, sorghum, millet, Hungarian grass, &c. We also raise cotton, but do not get more than two-thirds as much per acre as upon the large river bottoms. We are subject to drought and partial failure of crops in consequence." Gillespie: "Our soil is generally a mixed, sandy loam, in the valleys and bottoms alluvial, and several feet deep." Fayette: "The soil of this county is adapted to every vegetable suited to the climate; soil from the poor, rocky hill, to the richest valley; from the sand bank to the most tenacious mortar when wet." Washington: "Our soil, for the most part, is so fertile that without any manure there are large crops raised every year." Cherokee, in the east, reports: "Our upland soil is very fine generally, much of it being red land and very productive. There is a large quantity of creek and branch bottom land, very fertile and easily cultivated." De Witt, in the south: "The

soil of the Guadelupe valley is of exhaustless fertility, the alluvial deposit of black humus being from three to seven feet deep in many places. In the bluffs and plateau above the second bottom are immense beds of marl, the remains of myriads of minute sea-shells." Nueces: "The soil is chiefly black, sandy loam, capable of producing corn, cotton, tobacco, sweet potatoes, and castor-oil bean in abundance, but owing to the uncertainty of the seasons but little is cultivated. I think the castor bean could be cultivated with success, as it stands the drought well."

There are few counties without sufficient timber for home uses, and when deficient its absence is partially supplied with rock and stone for building and fencing purposes. Trinity reports superior timber and the finest pineries to be found in the State. In Fayette and Lavaca the timber is heavy, principally upon the Colorado, which abounds with pecan, ash, hickory, cotton-wood, wild-peach, hackberry, elm, cedar, and various oaks. In Navarro one-third of the area is in timber, the largest red cedars, some of which are 75 feet long and nine feet in circumference, cutting seven 10-feet rail cuts to the tree. Hardin county: three-fourths in timber, fine pines, oaks, walnut, hickory, gum, mulberry, with heavy cypress on the streams, affording lumber of all kinds and shingles in quantity. In Titus they have walnut, gum, pecan, hackberry, sassafras, persimmon, oaks in variety, hickory and pine in abundance, with seven or eight steam mills in operation turning timber into lumber. There is a scarcity of timber in Lampasas and several other counties, but rocks and stones, from common sandstone to beautiful variegated marble, are found in abundance.

Of minerals iron appears to be the most abundant, so far as the State has been developed in this regard, and is found in quantity in Grayson, Titus, Cherokee, Anderson, Nacogdoches, Williamson, Gillespie, Burnet, Llano, and other counties, with comparatively little effort at development. The only large foundry now in operation in northern Texas is located in Marion county, and supplies all that section of the State with ware and machinery manufactured from the domestic ores. Cherokee is rich in iron ore; during the war two foundries were established, but one of which is now in operation—cause, want of capital. The iron ore of Burnet and Llano is said to yield 75 per cent. of pure metal, equal to the best Swedish iron, but is not worked—no capital or enterprise. Our Anderson reporter says: "There is sufficient iron ore in this county to last the United States a century." Quantities of building and other stone are reported in Coryelle and Williamson, with gypsum and water cement in the latter, copperas in Grayson. Salt, lead, zinc, copper, soapstone, and marble are reported in Burnet, a block of the latter having been furnished for the Washington monument, at Washington, D. C.

Salt is found in several other counties. Our Cameron correspondent writes:

In the prairie lands salt-ponds and lagoons abound, where in dry seasons salt is deposited in immense quantities. During the late war Texas and Upper Louisiana were supplied from this source. In addition there are two salt lakes, one called Sal Viejo, or Old Salt, on the edge of this county and in Hidalgo, and another called El Sal del Rey, or the King's Salt, a few miles to the westward, in Hidalgo county. An analysis of the latter by Dr. D. Riddle, of the State geological survey, in 1860, resulted as follows:

Matter insoluble	0.5103
Sulphate magnesia	Trace.
Chloride sodium	99.0897
	99.6

which I believe to be the purest salt in the world; and in quantity it is inexhaustible. Until 1848 the Lake Sal del Rey furnished salt to nearly all of northern Mexico. Immense quantities were used in the process of extracting silver—the Patio process; and even up to 1858 I have noticed in the large mining towns of northern Mexico the placard of "salt from the Sal del Rey for sale," in the shops. All the labor required to obtain it is, in the dry season, to break it out of the cake into which the lake crystallizes, to the thickness of five or six inches, which breaking is done with crowbars; or, in the wet season, to wade out into the lake and break it out, the depth of water sometimes being as much as three feet. The shell, or cake

at these times is not above four inches thick. No other labor has ever been expended; no evaporators or works of any kind—nature does it all. This lake is not over 50 miles in a direct line from Point Isabel and the harbor of Brazos Santiago. The country is very near a dead level, principally prairie; and if a railroad should be built, it is my opinion that Turk's island would be less frequented by American vessels in quest of salt, and our pork and beef packers could always obtain the purest salt from our own country. One thing is certain, we have the salt, and if those who need it will build the road, they can obtain all they want, and more conveniently than from any other source within my knowledge.

In Lampasas county salt and sulphur springs abound, with salt works in operation, which, our correspondent writes, "with indifferent management produce from 30 to 40 bushels of fine grade salt per day." "The sulphur springs in the vicinity of the town of Lampasas are much resorted to by invalids, over 800 visiting them last season." In speaking of Sour lake, in Hardin county, our correspondent states that "it has been a place of resort for invalids for many years, and it is claimed that the use of the waters will cure a variety of diseases. I have known of many wonderful cures. The lake covers about five acres, and is three feet deep, and the water is continually in motion, caused by the bubbles made by the escaping gas. Immediately around the lake are many springs, in some cases not more than three feet apart, all different waters, and very strongly impregnated with different minerals—black, white, and red sulphur, soda, alum, magnesia, iron, salt. sulphuric acid, &c. Many of the wells have quantities of pure petroleum floating on the surface, and at times the lake is also covered. The gas in some of the springs is so strong that it will burn readily for some minutes by applying a burning match. There are several places around the lake where the ground is so impregnated with the oil that it is of the consistency of tar. Companies have been formed for boring purposes, but as yet nothing has been done in that direction."

4. A mixed husbandry prevails to a considerable extent in Texas, embracing cotton, wheat, corn, potatoes, rice, tobacco, rye, oats, barley, &c., in the list of products. Titus, Hopkins, Ellis, Cherokee, De Witt, and other counties, make cotton culture a specialty; Collin, Dallas, Burnet, Bell, Gillespie, and others, are more especially devoted to wheat; Lampasas and Goliad to corn; Nueces and Refugio to corn and potatoes, and Cameron to corn and beans almost exclusively. So entirely have some sections given their attention to the production of cotton, that they have been compelled to import their breadstuffs. Our Titus correspondent says, "Nine-tenths of the flour consumed in this county has heretofore been shipped from Cincinnati and St. Louis. * * The average yield of cotton has been 800 pounds seed cotton to the acre, 18 to 20 bushels corn, and 10 to 12 bushels of wheat in the timbered regions, and 15 to 20 on the prairies. These estimates are made on lands not manured, and under cultivation for eight or ten years without rest." As in all States where land is cheap, little or no effort is made to return to the soil the properties extracted by continuous cropping, and the "skimming process" of culture has generally been followed throughout the State. Our Williamson correspondent writes: "The mode of culture and tools are of the most ancient character, with here and there a noteworthy exception. The success of the innovators is like a light breaking in upon the old processes. There is now much inquiry for the best gang ploughs and sulky cultivators, harvesters and threshers, and enough have been introduced to insure a revolution in farming operations." Large quantities of sorghum sirup of superior quality are made in this county, and our correspondent says "the cane is cut two or three times during the season, and is one of our most profitable crops, the sirup selling at 50 to 75 cents per gallon."

In Burnet county "wheat yields best on the beach soil, and in favorable seasons averages 15 bushels to the acre; on the red loam somewhat less. Corn and rye on the loamy soils of the Colorado are considered sure crops. On irrigated lands sweet potatoes do well, 300 bushels being considered a good crop" Our correspondent estimates the value of the average wheat crop as above

named at $15 per acre, expenses $5, leaving a net profit of $10 per acre; about the same profit in corn, with more certainty. He adds: "The net profit of wheat culture would be enhanced by the introduction of improved implements, which are rarely seen here." In Coryelle "the crops, with few exceptions, are cultivated in the most negligent manner, and the county is 100 years behind the times." In Hays county "cotton and corn are the specialties, the latter proving the most profitable the past season, yielding a net profit of $5 per acre in coin; cotton paid $4 per acre."

From Fayette our correspondent writes:

Corn is cultivated in various ways; some break up their land with the common turning plough, and others bed or list up their lands and plant in the water furrow by drilling, or in checks three and one-half to four feet each way. Those who break up their land in a mass either drill or plant in checks, as described. Some run a furrow between the old rows of the previous year, drill the corn, and then bed the land on the same, and bush or harrow it over. As soon as the corn is up two or three blades high it is generally run around with a bull-tongue plough, and split out the middle with a turning plough the first ploughing. Corn can be made to grow from 50 to 60 bushels to the acre, with proper treatment.

De Witt county averages half a bale of cotton and 25 bushels of corn to the acre, without manure, but two bales of cotton of 300 pounds each and 80 bushels of corn per acre have been made in a favorable season. Our correspondent says:

The soil and climate of this county is peculiarly adapted to the culture of sorghum, broom corn, tobacco of the finest quality, castor beans, (the *palma christi* growing almost to a tree,) and of all the varieties of the melon and pumpkin families. In Lavaca three-fourths of a bale of cotton and 30 bushels of corn are grown to the acre, on an average; oats, rye, and barley do well, but wheat is often ruined by rust; while of sorghum and sugar cane, two crops are made in one year. In Goliad corn has been the only paying crop since 1860; sorghum and the castor bean are attracting considerable attention, both yielding abundantly. In Refugio corn and sweet potatoes are about the only crops grown, and they can scarcely be said to be cultivated, being merely planted in the most careless and slovenly manner, and left to grow as best they can, with perhaps one ploughing; corn yielding 25 to 30 bushels per acre, potatoes 50 to 100 bushels.

From Cameron county our correspondent writes:

The only crops cultivated to any extent are corn and beans, for home consumption. We have a soil and climate in which, in favorable seasons, two crops of corn and beans can be raised on the same land in one year, yet we rarely raise corn enough in the valley to last from one year's end to another. The mode of culture is quite primitive; the plough is a knee of timber, one end sharpened to a point and shod with iron, the other whittled down to a handle; a beam is mortised into the angle, reaching to the yoke on the cattle, penetrating about four inches, and a farmer who runs this plough plants every fourth row, making but little over two feet between the rows of corn, the hills being about the same distance in the row. It grieves a Mexican to see corn planted four feet apart in squares, as is the custom in many places, there is so much good land left idle; consequently they generally plant as described, and our rich soil makes corn for them. It generally gets two hoeings, one to clean the ground from weeds when the corn is from four to six leaves, and one to hill up when about shooting the tassel. Sometimes it gets but one hoeing. A few Mexicans plough their corn once and hoe once. Those who plough have the same forked stick, but about midway on the part that runs on the ground is mortised in on each side a piece of wood about six inches in length, curving upwards, which scrapes the ground between the rows and throws some dirt towards the plant. A few Americans are farming along the river, and where they have not degenerated into the Mexican style, make 40 to 50 bushels of corn to the acre

5. In many parts of Texas little or no wheat has heretofore been sown, but a number of our correspondents state that the culture has attracted more attention, in view of the failure of cotton as a paying crop the past season, and that the wheat acreage of next fall will be largely increased, and that some farmers will try spring wheat this season; the latter not being grown to any extent. Of the several varieties of fall or winter wheat sown, the red May appears to be almost universally preferred, it standing sudden changes of weather better than other kinds known, and its early ripening qualities enable the crop to escape the rust and smut to a greater extent. The Tappahannock wheat, distributed by the Department of Agriculture, also finds much favor for the same reasons. Various other wheats are sown, but to limited extent; among them the Mexican, hedge row, &c. The usual time for sowing winter wheat ranges from the middle

of September to the latter part of October, but the seed is often put in thirty days later. Spring wheat is sown from the middle of January to the first of March; almost the whole acreage is sown broadcast, drilling being apparently unknown in most sections. Winter wheat is harvested from the first of May to the middle of June, and the spring crop in June, sometimes extending into July. Of the mode of culture our Lampasas correspondent says:

Few farmers prepare their ground before sowing, none manure, and the usual mode is to sow on the rough or stubble ground, plough in and run over with a tree-top. With this miserable culture the average yield is about 12 bushels to the acre.

This system seems widely prevalent in the State, and the only wonder is that the average yield reaches the figures named—the crop of 1866 being estimated at 12 bushels to the acre; with proper cultivation the yield could doubtless be doubled.

In recommending early sowing, our Burnet correspondent writes:

By sowing early, the wheat becomes better stocked before cold weather sets in. It thus becomes a valuable winter pasture, yielding nevertheless a crop. I think pasturing proves disadvantageous to the growth of the wheat, except in cases where wheat is too forward in the spring, when it is likely to be killed by frost. Precaution, therefore, requires the wheat to be kept down by pasturing. An experienced farmer informs me that the pasturing of his wheat-field had paid him for seed and work, and still he made a crop of fifteen bushels of wheat to the acre. I do not recommend this practice, however.

6. Natural grasses are found in great variety in this State, many of them classed under local names, and millions of acres of woodland and prairie are covered with a luxuriant growth, which furnishes common pasture for innumerable herds throughout the year. Wire-grass, millet, clover, prairie-grass, Bermuda, musquit, sedge, crab-grass, sage, buffalo, rescue, &c., &c., are named by our correspondents in the various counties, and of the cultivated grasses Hungarian appears to be most successful, several northern clovers and grasses having proved failures, owing, perhaps, to the extended droughts. There is so much land in common upon which the wild grasses grow, that seldom other than milch cows are kept in pastures, and those only in winter. During eight or nine months of the year the range is fine, and cattle, horses, and sheep keep very fat, and dry cattle do well the balance of the year. Our Hopkins county correspondent writes:

We depend principally upon the wild grasses, which are very luxuriant, many raising their crops "upon the grass," as it is termed, working the teams in the daytime and letting them gather their living upon the prairies at night. Many animals live exclusively on the prairies, with no care or attention from their owners, except marking and branding in the spring, when young, and never seeing them again until old enough for market. For nine months of the year these natural pastures are sufficient to keep both horses and cattle, not only living, but fat. The cost may be set down at nothing, as many own hundreds of cattle without seeing them more than once a year, though under such circumstances many stray off and cost time and money to get them back.

In DeWitt county they have a great variety of native grasses, our correspondent having gathered thirteen distinct sorts in a neglected garden of half an acre. He reports a species of millet grass, which appeared spontaneously in their fields about ten years ago: "It generally comes up after corn is laid by, and grows rapidly, maturing in about eight weeks. It stands from three to five feet high, and very thick, affording an immense yield to the acre. It is cut with scythes out of the corn rows, and makes very fine hay, horses preferring it to the best blade fodder. The seeds are like millet, but larger, and are liable to shed off if not cut pretty green. Some German farmers leave out a piece of farm land, giving it frequent ploughings and harrowings while working their corn, when this grass springs up and yields an immense crop, which they cut with their mowing-machines. Our botanists class this grass as a new variety under the name of '*Panicum Texanum*.'" The same correspondent adds:

Sheep in this county are a considerable interest. We own about 100,000 head, principally grade merinos. From neglect during the war, and poverty since, we have suffered our flocks to degenerate. Three pounds of wool to the fleece is about the average yield, worth

here 10 to 12½ cents per pound in specie. Sheep are liable to no disease except scab, which is easily cured. Dogs or wolves seldom kill them.

In speaking of the cost of pasturing stock, our Cameron correspondent says:

A person who owns no land, and wishes to hire pasturage for cattle, can obtain it of the landed proprietor in this wise: Suppose a man has 100 head of cattle, his rent for land, for houses, pasturage, pens, &c., will be $10 a year. This rent holds good until he has 150 head, when another $10 will be added, as for 200, and so on, fractions of less than 50 not being counted. Horse pasturage the same; sheep $1 per hundred.

7. The capabilities of Texas as a fruit-growing State have never had a fair test as yet, little attention generally having been paid to the culture; but, with few exceptions, our correspondents report success upon the small scale upon which experiments have been tried, including peaches, apples, pears, plums, cherries, figs, grapes, small berry fruits, &c.—peaches and grapes appearing to have the preference in most localities. In Titus fine crops of peaches are produced in three years from the seed. This fruit is also raised to perfection and in quantity in Collin, Dallas, Washington, Trinity, McLennan, Hardin, Hopkins, Cameron, and other counties, though the crop is frequently injured by the frosts in some localities. Apples have not been cultivated to much extent, from the impression that they would not do well, but success is removing this idea, and the culture is increasing. In Grayson county, last year, an orchard of about six acres yielded about $800 worth of fruit, and the same in 1865, the first bearing year. Our Collin correspondent writes:

I have never seen finer apples than specimens raised in this county, but the tree is subject to what is called root-mould, which destroys many trees.

From Hopkins county our reporter writes:

The opinion that apples will not do well here is giving way before successful attempts to raise them. To those who succeed profits are large, as the fruit sells readily at from $3 50 to $6 per bushel, or from 50 to 75 cents per dozen.

Grapes are reported as peculiarly successful throughout the State, growing wild and abundantly in many localities; and foreign varieties do well wherever vineyards have been set out. The "Mustang" grape grows in great luxuriance, and is found to be one of the most prolific varieties known. It grows on the borders of many of the streams in great abundance, and is said to make an excellent wine. The woods abound with varieties of these wild grapes, and our Hopkins correspondent says that "no climate can be much better adapted to the culture, and Texas must soon become a wine-producing country." Our DeWitt reporter thinks that nature has pointed out that region as peculiarly adapted to the vine, and adds:

The Mustang grape grows everywhere with the utmost luxuriance, and yields an immense crop. It makes a good, wholesome wine, or, when distilled, the best and purest Cognac brandy. * * * Cultivated vines, of nearly all known varieties, have been tried, and all succeed except the Scuppernong, for which the climate is too dry, and perhaps the soil is too limy. * * A German on the Coletto made, from an acre and a half of Catawbas, the fourth year from planting the cuttings, about 500 gallons of excellent wine. The culculture of the vine and the care of sheep can be advantageously united, our country being peculiarly adapted for both occupations.

Vineyards are being planted in Washington and neighboring counties, promising in a few years to be an important business in that section. The Delaware, Concord, Hartford Prolific, and others of this class, ripen in July. In the northern part of the State the Catawba ripens about the 1st of August. In Navarro "the Mustang grape, large as the Catawba, is the most prolific. This grape is not subject to mould, and it is not unlikely that, at a future day, this will be a large wine-producing country." There is no market for fruits generally, though peaches are dried with profit, commanding three dollars to five dollars per bushel. Apples find ready sale at large prices. Grayson county raises fine pears, some of them weighing as high as 21 ounces. Pecan, hickory nuts, &c., yield largely in some sections. From Gillespie county alone this year over 6,000 bushels of pecans have been gathered and shipped, and 12,000 bushels the preceding season, worth from $2 to $3 per bushel.

TENNESSEE.

1. Our returns from Tennessee indicate a general decline of 15 to 20 per cent. in the value of farm lands, as compared with the census estimates of 1860, though several counties report no appreciable change, while others report an active advance of from 2 to 15 per cent. The heaviest decrease is reported from Davidson and Henry counties, being about 50 per cent., though the former reports few sales at reduced rates, unless under compulsion, while in the latter the decline is attributed to "the dilapidated condition of houses and fencing, and the wild growths consequent upon the war, together with high taxes," &c. Weakley and Meigs report 40 per cent. decline; Rhea and Lincoln, 33; Haywood, 30; Hawkins, Monroe, Polk, Coffee, Perry, 20; Hickman, 16; Bledsoe and Giles, 10; Greene, 3 to 5; while Williamson, Union, and McNairy remain at about the same figures as in 1860; Montgomery reports 2 per cent. increase; Sevier and Campbell, 10 per cent.; and Marion from 10 to 15 per cent. Our Rhea correspondent says: "The great bulk of land in this county for the last 50 years has been in the hands of a few owners, and it increases in price when there is little tax to be paid, and decreases when the taxes are greater; hence the present decline." The same general causes, however, which have tended to depreciate real estate, and particularly farm lands, in the southern States, have operated in Tennessee, though not to the same extent, nor is it probable that a return to former values will be so long delayed, there being less necessity to sacrifice and not so strong a disposition to sell at any price.

2. Wild or unimproved lands are variously quoted from six cents per acre upwards, according to location, quality, and capabilities. Much of this class of lands in the eastern counties is mountainous or hilly, with coves of rich lands, upon which cattle and sheep grow fat from May until September. On these mountain lands there is considerable valuable timber, and when cleared much of the land is very productive of corn and other crops, and suited to grazing purposes. In Greene county such lands are worth from six cents to $1 per acre; in Hawkins the average is given at $3 per acre; Sevier, 50 cents to $1. In Union, ridge land, thin-soiled, capable of producing 20 bushels of corn or eight bushels of wheat, $2 50 per acre; Campbell, $1 50—mountainous, variety of soil, a good portion susceptible of improvement, adapted to the growth of clover, timothy, &c. Lands of the same general character in Monroe and Polk, 50 cents to $1 per acre; Meigs, $2 per acre—broken, gravelly, and generally poor; Rhea, $1 to $4—varying much in quality, being second bottom, upland, ridge, and mountain lands, generally well timbered, with good water, and healthy, and capable of producing corn, wheat, barley, &c., and excellent for fruits and tobacco. Bledsoe, about 50 cents per acre—soil thin, but good for grazing, and for raising vegetables when cultivated; Marion, $1 per acre, in great quantity—red, sandy loam, rich and strong—will produce grain and fruit. Coffee county, $1 to $3, comprising half the county—table lands—will produce corn, wheat, rye, oats, potatoes, vegetables, &c.; well managed valley and hill lands, without manure, will yield 50 to 60 bushels of corn and 20 to 25 bushels of wheat to the acre. Lincoln, $1 per acre, embracing an area of 100 square miles—soil thin, needing lime; fruits, especially the peach, grow to perfection; these lands lie 200 to 300 feet above the bed of the Elk river, on which are situated the best lands of the county. Giles—large tracts in timber at from $1 to $5 per acre. In Montgomery, Stewart, and Dickson there are large tracts of what are called "furnace lands," said by our correspondent to be comparatively valueless, except for coaling and sheep raising; they are high and well timbered, however. Hickman reports as low as 25 cents per acre—soil generally thin, but timbered and capable of improvement. Perry, $1 per acre—bottoms level and exceedingly fertile, upland rolling and tolerably productive; 75 per cent. of the whole susceptible of improvement. McNairy, $5 per acre—one-third good bottom, two-thirds for grazing and timber. Haywood, $3 to $8; the greater portion in

the Hatchie and Forked Deer river bottoms subject to overflow, and thus rendered unfit for farming purposes, yet they abound in the finest white-oak and cypress timber; if the rivers could be leveed and the overflow regulated, these bottoms would make the finest farms, the soil being very rich and fertile. Weakley county, $4 to $15 per acre—capable of producing 30 to 50 bushels of corn per acre, 600 to 1,000 pounds tobacco, 15 to 20 bushels oats, 10 to 20 bushels wheat, 600 to 1,000 pounds seed cotton, and vegetables in abundance. In Henry county our correspondent reports little land under this head, the county being well settled up; the price for such as may be found he averages at $7 per acre.

3. The mineral resources of Tennessee are developed to but a limited extent, though her hills and mountains contain stores of iron, of coal, and of copper, of zinc, of sandstone, and of the finest marble, awaiting the capital, enterprise, and labor that shall dig out and utilize these dormant mines of wealth. Iron ore is found in great abundance in nearly all the counties of eastern and middle Tennessee; copper, in Greene, Sevier, Polk, Perry, and other counties; coal, in the mountains of Campbell, Rhea, Marion, &c.; some gold is reported in Polk; salts, in Greene and Hawkins; lead, in Perry; fine marble and building stones, in Hawkins, Campbell, Monroe, Meigs, Giles, and Williamson; thick stratum of shale in Coffee, &c., &c. The timber resources are also extensive, embracing a great variety, and many of the finest quality of forest trees—hickory, the various oaks, poplar, walnut, ash, beech, chestnut, locust, cedar, sugar, pine, &c., which cover a large portion of the vast tracts classed "wild or unimproved lands," and to be purchased at the figures named above for such. The soil ranges from that of the deep rich bottoms, of exhaustless fertility, to light and hilly uplands, which require high culture to become productive.

In a number of counties the iron interest has been partially developed. In Greene one furnace is in operation, and a northern company have purchased several thousand acres of ore lands and will soon have extensive works completed. Near the town of Greeneville there is a bed of sulphate of iron, from which copperas was made during the war, and where even the clay is impregnated with the mineral. Our Montgomery correspondent says "that within twenty-five miles of Clarksville there are from ten to twenty furnaces lying idle for want of capital; most of them were burned during the war, and the proprietors, being unable to rebuild and run them, would sell out very low."

The zinc of Greene county is said to be very rich; during the war Epsom salts were also made to some extent in the mountains. In Hawkins, our correspondent states, "there is an underground stream of salt water traversing the valley, which has been tapped at several points, at one of which the manufacture of salt has been successfully prosecuted for a number of years, though not upon a large scale; but it is thought that, with capital and enterprise, it might be made to rival the salt wells of southwestern Virginia in the production of this valuable product. * * * A most beautiful quality of marble is found at various points in this county, one quarry of which was worked to a considerable extent before the war. Much capital might be profitably invested and many laborers usefully employed in the manufacture and preparation for market of the two articles named—salt and marble—as well as iron, the ore of which is present in the mountains." Our Marion correspondent says "the quantity of bituminous and semi-bituminous coal and iron ore in this county is unlimited, with but little development of the former and none of the latter, though the inducements are great, produce being abundant and transportation good and improving."

Our Coffee county correspondent writes:

A stratum of black aluminous shale, at least twenty feet thick, underlies the whole of the table lands of this county, and crops out in the foot hills. It burns with a brilliancy equal to the best bituminous coal, but does not burn to ashes, nor does it do for smiths. It may be valuable, but we do not regard it in the least so.

A number of our reporters speak of the many eligible water-power sites to be found upon the innumerable rivers and mountain streams of the State. From Sevier county our correspondent writes:

Our water-power cannot be surpassed in the world. There are three branches of the Little Pigeon river running through this county, running from the Smoky or Iron mountain, upon the banks of which you cannot go amiss for choice sites for manufacturing establishments.

Our Haywood correspondent, in speaking of the formation of that county, says:

Often, at the depth of 100 feet, we discover large trees, mostly of the oak and cottonwood species. Sea shells are often found in digging wells, also various other relics of a former condition of this country. In many places large tumuli or mounds are to be found, some twenty, some thirty, and others fifty feet high. These mounds always contain something—human bones, old pottery-ware, arrow-heads, curiously wrought devices in rocks, &c. In Lauderdale county, immediately west of this county, in the Mississippi bottom, a very extensive burying-ground has been discovered, unknown in extent, where thousands of human bones are found, belonging to a race of people at least two feet higher than the present generation.

Very few counties of this State can be said to make a specialty of any one crop, a mixed husbandry generally prevailing. Wheat, corn, oats, potatoes, sorghum, &c., are grown successfully in all sections, while cotton and tobacco are largely cultivated in some localities. In a majority of counties corn and wheat are the leading crops, the former being fed largely to stock. In Monroe "corn and wheat are the staples; the best hommock and intervale lands produce, with good cultivation, 40 to 50 bushels of corn to the acre, at an average cost of 20 cents per bushel; and, when well put in on a good clover sod, wheat yields 15 to 30 bushels, at a cost of $4 per acre, including seed." Corn is made the chief crop, because the surest. Corn is also the specialty in Rhea county; "it requires a man and a horse on an average about four days' labor per acre to make corn, and the usual yield is 30 to 35 bushels per acre." Our correspondent says of the profits:

This year a man's work four days with horse, &c., would be $6; one acre of corn, say 35 bushels, at 60 cents, $21: making a net profit of $15 per acre. A man can easily till 20 acres in corn, giving a net profit of $300, besides harvesting his small grain and hay.

Bledsoe reports 25 bushels corn and six bushels of wheat as the average per acre. Marion "bottom lands yield about 30 bushels corn, upland 10 bushels, but can be made to produce three times as much by proper cultivation, the mode of culture being of the lowest grade; except in a few instances the soil is not broken up or disturbed below two and a half to three inches, and not two-thirds of the surface." Our Coffee correspondent says:

Corn for the rearing and fattening of stock has for some time been our principal crop, and hogs the largest item of profit from it. Wheat, as an article for export, is receiving more attention than formerly.

Stock-raising is also a profitable branch in Williamson county. In Union, "corn pays $10 per acre, wheat $10, oats $3, potatoes $15, and sorghum $30." In Giles county, "cotton has been a specialty for the last three years. With imperfect culture 1,000 to 1,200 pounds of seed cotton per acre are produced, but those engaged in the culture for the past two years have found the debtor side of the balance sheet against them. * * Corn, wheat, rye, oats, barley, hemp, flax, tobacco, sorghum, potatoes, &c., grow to perfection; 40 to 50 bushels of corn and 15 to 25 bushels of wheat per acre being raised." McNairy: "Cotton is the special crop, though our soil is well adapted to corn, but not so well for wheat; average yield per acre, 1,000 pounds seed cotton, 40 bushels corn, 10 bushels of wheat; the profit on cotton is small, and more could be derived from grain and stock, if attention were turned to them." Lincoln county: "Cotton, corn, small grains and blue grass are the chief crops. Cotton has been grown at a loss the present year. The crop of the county reached 6,000 bales in 1867, but for 1868 it is thought there will not be sufficient land planted to raise 1,000 bales. Our farmers have not recovered their hog crops

since the war, in consequence of which, in connection with the closing up of distilleries, we have a large surplus of corn, which is now selling at 25 to 35 cents per bushel, there being no means of cheap transportation. Of 40 distilleries in the county not one is now in operation, owing to the heavy expenses under the law. Our Montgomery correspondent writes:

Tobacco has been, but stock-raising probably will be, our specialty, as the opinion is now general that there is no money in the former.

In Henry county, tobacco, wheat, and corn were the chief crops before the war, but cotton has since taken the place of tobacco, but for the future our correspondent thinks the latter will resume its old position.

One good hand can cultivate two and a half acres of tobacco, 15 acres of corn, 10 acres of wheat, three acres of herds-grass, and one in late potatoes, with the following result:

2½ acres tobacco, at 1,000 lbs. per acre, 2,500 lbs., at 8 cents	$200
15 acres corn at 40 bushels per acre, 600 bushels, at 40 cents	240
10 acres wheat, at 8 bushels per acre, 80 bushels, at $1 50	128
3 acres grass, 3,000 lbs. per acre, 9,000 lbs., at ½ cent	45
1 acre potatoes, 60 bushels per acre, at 75 cents	45
	650
Estimated expenses not more than	150
	500

The labor to raise the two and a half acres of tobacco is not more than is usually required to raise that amount of corn, but the labor in suckering and worming is much greater. The great advantage in raising this crop lies in the fact that the corn crop is harvested before there is much to do with the tobacco, except planting You house it about the 1st of September, at which time you are ready to sow your wheat; by the 1st of October all farmers ought to have their wheat in, and be ready to gather the corn; this done, your tobacco is ready for stripping and preparing for market, so that an industrious farmer can all the time be busily engaged with his crops, except a few weeks in the winter.

Peanuts are extensively grown in Perry county, yielding from 50 to 100 bushels per acre, worth from $1 to $3 per bushel, while the haulm is preferred by horses and cattle to any other kind of fodder. One hand can cultivate, gather, &c., from 1st of May to 1st of December, 10 acres of these nuts.

5. Among the many varieties of wheat cultivated in Tennessee the most prominent are the red May, Walker, Quaker, white and red Mediterranean, Tappahannock or Boughton, blue-stem, Orleans, gold-chaff, &c., little or no spring wheat being grown. In Green, Hawkins, Union, Rhea, Monroe, Polk, and other counties the Tappahannock wheat distributed by this department has become popular on account of its earliness and consequent freedom from the dangers which beset later varieties, as well as for its certainty and productiveness. White and red Mediterranean, red May, blue stem, and Walker are largely grown, and, with the Tappahannock, comprise most of the wheat crop in the State. The preference is given to the red wheats in a majority of the counties, as being the most hardy and best able to stand the cold winters, though the white is considered by many the most prolific. The seed is put in the ground from the first of September up to December, but the greater portion is sown from the middle of September to the first of November, and the crop is harvested generally in the second and third weeks in June, though in some cases commencing earlier and in others running into July. Drilling is reported in very few counties and to but limited extent, but when practiced is popular, and will doubtless soon be adopted as its advantages become known among wheat-growers of the State.

Wheat receives very little culture, seldom more than a rough and shallow breaking of the ground, a light harrowing, with the seed sown broadcast and harrowed in. In Weakley county "the seed is simply sown and ploughed in roughly with common turning ploughs; many farmers sowing lands upon which

the corn is standing." Our correspondent remarks, "if we were to sow wheat on fallow lands and put it in properly, we would add at least 50 per cent. to the product." In Perry "the only cultivation is to plough the ground and brush in the seed." Giles county, "the culture is scarcely worthy the name; a plough boy with a bull-tongue plough scratches among the standing corn." Monroe: "We sow wheat on clover sod turned on an oat or corn stubble, ploughed and harrowed in grain, top-dressing thinest spots with stable manure or leached ashes." Lincoln: "Wheat is usually ploughed in with an ordinary turning plough and occasionally harrowed." With such indifferent culture it is not surprising that in 1866 the average yield per acre was only five and three-tenth bushels, or only four bushels above the seed sown.

6. There are a variety of natural grasses in Tennessee, including musquit, blue grass, crab, fox-tail, sedge, nimble-will, &c., furnishing, in some sections of the State, with the cultivated grasses, pasture for cattle during the entire year, and at but little expense. Red-top clover and English and Kentucky blue grass are extensively sown for grazing purposes, and for the meadows, clover, timothy, red-top, orchard grass, &c., are used. Our Lincoln correspondent writes:

Blue grass is natural to our pastures, and covers our hill-sides when the undergrowth is cut off. Farm animals can feed exclusively on the pastures except during January and February, though they frequently get very short in August and September, when rains are not frequent.

In Weakley most of their cattle, sheep, and hogs live in the forests on the wild grasses from the first of April to the middle of November. Davidson county: "Blue grass is our best grass for pasturage, and will keep stock in good condition through the entire year, if dry food be furnished during the few days or weeks in which snow is on the grass." Coffee county: "Early spring and summer grasses abound on the table-lands, upon which stock, especially sheep, do quite as well from April 1 until frost, as upon cultivated pastures. Sheep husbandry, properly conducted, would prove a complete success on our cheap table-lands." In Perry, "farm animals feed exclusively on pastures the whole year—nine months on grasses, and three months on cane; the cost per head of pasturing cattle is the amount necessary to supply them with salt." Giles county: "Blue grass grows here second only to Kentucky; clover and lucerne superior to Kentucky; farm animals can feed exclusively in pastures from 1st of April to 1st December, and, if we would seed land enough in grasses, could graze and do well all the year round. The price for grazing cattle the past season has varied from $1 to $1 50 per head for the season. Our climate, in connection with our short winters, the fertility of our soil, and its adaptation to the growth of the various grasses, &c., makes it one of the most desirable portions of the Union for raising and feeding cattle."

7. Fruit culture has received comparatively little attention in Tennessee beyond raising a supply for family use or home consumption, though apples, peaches, pears, plums, the small fruits, and all fruits suited to the latitude, succeed so far as tried. Our Giles correspondent says:

Quite a variety of fruit is grown. Apples, (some 20 varieties,) peaches, pears, plums, grapes, have all been grown to perfection, with occasionally a heavy yield, taking into consideration the fact that there is no after-culture, and very little attention given them after planting out. We know of apple-trees yielding 25 to 35 bushels. Very little fruit is sold, the surplus being given to the hogs. A society has recently been organized to improve the culture of fruit.

Hawkins county: "There are few localities better adapted to fruit-growing than East Tennessee, especially for the cultivation of apples and peaches, which could be made a profitable business in this county if conducted with that care and skill necessary to success in any branch of industry; but there is generally so little attention given to orchards after the trees are planted, and the business is conducted in so careless a manner, that it would be impossible to estimate the profits; but even with the small amount of care bestowed upon them, peach trees will con-

tinue to bear good crops for over 20 years." Lincoln county: "Our ridges, hills, and barren lands produce excellent fruit—apples, peaches, pears, &c. Fruits have never been made an object of profit, except small quantities of apples and peaches distilled into brandy. In 1866 some dried peaches were exported, and, perhaps, 2,000 cans put up for exportation." Coffee county: "Our table-lands are thought equal to any portion of the United States for thriftiness in the growth and durability of trees, and of quantity and quality of apples, peaches, plums, &c." Our Henry correspondent writes as follows:

There is no finer fruit region than that embraced by the State of Tennessee. Our winters are cold enough to put a stop to vegetation sufficiently long to enable the tree to recuperate, and yet not so severe as to endanger the life of any but the tenderest species. Apples, peaches, pears, quinces, plums, cherries, apricots, nectarines, figs, grapes, berries, melons, &c., may be raised with the greatest ease and in abundance. Wild grapes are found in vast quantities on the ridge and mountain lands, and also upon the table-lands, upon which, in some counties, they grow better upon the hills. Cultivated varieties have been successfully grown in some localities, while in others the results have been indifferent, and in some cases discouraging.

Our Haywood county correspondent says:

The culture of grapes has received little attention, yet there is no doubt but they will do as well here as anywhere on the continent, from the fact that the best wild grapes I have ever seen grow throughout the whole extent of this country. A grape grows here in abundance called the muscadine, which produces a very superior wine.

KENTUCKY.

1. Returns from Kentucky show an average increase of about 10 per cent. in the value of farm lands over the estimates under the census of 1860, though the advance is by no means uniform, nor is the decline or increase confined to any particular section of the State; as, while in Kenton, Pendleton, and Boone, in the northern portion, lands have advanced from 40 to 50 per cent., Franklin county, close at hand, reports a decline of 25 per cent., and Owen and Oldham "no change." In the western section Webster reports 10 per cent. decline; Ohio, Butler, and Christian, "no change." Todd and Graves a small advance, and Livingston an advance of 10 per cent. Of the central and southern counties, Clinton reports 10 per cent. decline; Russell and Pulaski, "no change;" Metcalfe, Whitley, and Laurel, 10 per cent. advance; Edmonson, 25 per cent. advance; and Rockcastle, 30 per cent. advance. Thence further north, Hardin reports a decline of 25 per cent.; Spencer, 15 per cent. decline; and Fayette, "no change;" Scott and Gallatin, a slight advance; Henry 10 per cent., Harrison 20 per cent., and Anderson 33 per cent., advance; Jefferson reports lands in vicinity of Louisville 100 per cent. higher than in 1860, but not so large an increase for lands more remote from the city. In the northeast, Lewis county reports 30 per cent. advance, while the adjoining county of Greenup reports "no change."

2. The estimated value of wild or unimproved lands in the State varies from $1 per acre up to the price of improved lands in the several counties. Rockcastle and Pulaski are the only counties reporting as low as $1 per acre, the land in the former being "poor, hilly, and heavy," and in the latter "varying from poor freestone plateaus to rich, north slopes and hollows in limestone, suited to fruit culture." Lewis, Lincoln, Butler, Christian, and Graves report from $2 per acre upwards, most of those at $2 being mountainous and poor, though some are covered with heavy forest and are susceptible of improvement and will produce good crops. Russell, Edmonson, Webster, Livingston, Ohio, Hardin, Laurel, Greenup, and others, vary from $2 50 to $5 per acre; Anderson, Owen, Franklin, Trimble, and Metcalfe, $5 to $10 per acre; while Todd and Pendleton estimate at $20, Kenton $25, Oldham $30, and Bourbon as high as $75 to $80 per acre; the higher figures representing lands in close proximity to cities, upon lines of railroad, or with valuable timber accessible to market. In Ken-

ton county the timber is good—oak, ash, black walnut, and hickory, worth much more than the price of the land, and the soil is fertile, as is generally the case in surrounding counties. In Bourbon county the lands reported are not properly under this head, being in grass, without building improvements, valued at $75 per acre. Along the Kentucky river these unimproved lands are generally rocky and hilly and in timber, suited to grass and fruits. A portion of the soil is clay, on limestone, thin and rolling. In Anderson, most of this class is rough and hilly, of average richness, producing blue grass in abundance, and when first cleared will yield 50 to 60 bushels of corn to the acre. In Lincoln, about half the county comes under this head; high, sandy, with heavy forests of oak, poplar, and chestnut, capable of producing wheat, corn, tobacco, sorghum, &c. In Whitley, the creek and river bottoms are rich, the uplands thin. In Russell, the soil of such lands is generally poor and thin, but susceptible of improvement, a portion heavily timbered. In Ohio county the hill lands abound in coal and iron, and the swamps make good meadow, while the whole county is well timbered. In Graves, about one-tenth is bottom land, one-fourth broken, timbered, and the remainder level, light-timbered, called barrens. The general character of these lands is good, and much of that which is not already fertile may be readily improved and rendered highly productive in general farming, or well suited to grazing purposes.

3. Kentucky is rich in mineral resources, and her beds of coal and mountains of iron and stone are almost inexhaustible. Coal is found in abundance in Greenup, Rockcastle, Laurel, Pulaski, Whitley, Clinton, Edmonson, Hardin, Ohio, Butler, Christian, Webster, and other counties. In most of these counties this coal is of excellent quality, but used only for home consumption, there being no means of transportation. In Laurel county the coal beds are from three to five feet in thickness. A railroad is now in progress of construction through the central part of the county, connecting with Louisville, which will open up a market for this coal, now undeveloped for want of means of carriage to market. In Pulaski they claim to have "the best bituminous coal on the continent." Our Clinton correspondent says:

> A range of hills in the eastern part of this county, extending north and south, contain an immense amount of coal in strata of four feet in thickness.

This coal is now being worked to some extent by a company who ship to Nashville. In several counties roads are being built that will encourage the more extensive development of this interest, but as yet little has been done in that direction.

Iron is found in greater or less quantity in Greenup, Trimble, Rockcastle, Pulaski, Whitley, Russell, Clinton, Edmonson, Ohio, Butler, &c., but, like the coal deposits, has been but feebly developed. In Greenup the furnaces are closed up, ore within reach of present facilities being pretty well exhausted. Iron ore is found all through Russell county. "About 35 years since a very superior iron was manufactured here, from which some of the blacksmiths made good edged tools without steel. The iron was hard and tough. There has been no development since, and it is doubted whether the ore is in sufficient quantity to pay for working." This ore also abounds in Clinton county, and David Dale Owen, in his Geological Survey of Kentucky, in speaking of this and counties east of it, says:

> There is every reason for believing that their resources in coal and iron—staple commodities of those nations of greatest prosperity—will, when fully developed, compare favorably with those of any civilized country on the face of the earth.

In Butler county there is much iron ore, but it is said to be of the honeycomb variety, which is considered comparatively valueless. A large amount of capital could be profitably invested in utilizing the iron interest of this State.

Lead is found in Trimble, Owen, Bourbon, Scott, Franklin, Anderson, Livingston, and counties contiguous. In Anderson there is a mine said to yield

80 per cent. of lead, but the chemist making the test reported that it would not pay to work it. In Livingston, lead has been found upon the surface, but has not been worked to any extent. Salt wells exist in several counties, but are not worked. In Clinton, says our correspondent, "a fine stream of salt water has been struck on Willis creek, in the northwest, and a company are now at work producing salt, and the prospect is considered good. There is a fine opening for men experienced in salt making, there being an abundance of water, and timber and labor is cheap. Salt for the Nashville market and for the Cumberland river country comes from Ohio and Western Virginia. The cost of shipping salt down the Ohio and up the Cumberland is certainly much greater than down the Cumberland to Nashville." Salt water also abounds in Metcalfe, Anderson, Whitley, Russell, &c. There has recently been discovered a gold mine in Anderson county, and its value is being now tested by a company. Saltpetre is found in Rockcastle, and limestone and freestone abound in Lewis, Trimble, Clark, and other counties. Our Lewis county correspondent claim s for his county "the finest ledge of freestone from Pittsburg to Cincinnati, fro m which nearly all the fine buildings in the latter city are now being built, and the rock of which the Cincinnati and Covington bridge was built was taken from the quarries of this county; not extensively worked, there being but one quarry in operation, employing 200 men."

The timber resources of this State are well known, the finest quality abounding in all sections, and embracing a great variety of forest trees of primitive growth, furnishing unlimited lumber supplies, as yet but partially developed. The soil of the State, however, supplies her chief source of wealth, rendering Kentucky peculiarly an agricultural and grazing country, in which latter branch she had long ranked among the first in the land.

Few farmers in Kentucky confine themselves to the culture of any one crop, and a mixed husbandry generally prevails, embracing the production of wheat, corn, oats, rye, potatoes, tobacco, the raising of stock, &c. Wheat, corn, and tobacco are the chief crops, the latter being the principal one for export, the corn grown being largely used upon the farms—converted into st ck. Our Trimble correspondent writes.

The tobacco crop in this county is the most valuable. In 1866 the product was 1,916,100 pounds, but, owing to the drought, the crop of 1867 did not reach more than half as much. The product of hay in 1866 was 826 tons; corn, 276,235 bushels wheat, 11,824 bushels; barley, 1,052 bushels.

Tobacco is also extensively grown in Owen, Franklin, Edmonson, Ohio, Christian, Webster, Pendleton, Todd, Graves, and other counties, while wheat and corn receive especial attention in Greenup, Lewis, Bourbon, Scott, Hardin, &c., and corn alone, the leading grain product, in Laurel, Oldham, Anderson, Boyle, &c. In Edmonson tobacco yields an average of about 800 pounds to the acre, with a profit of about $30 per acre. Ohio county: "Our principal and most reliable crops are tobacco and corn, upon which our farmers have mainly relied for profit; first, by the sale of their tobacco direct; second, by the sale of stock fed and fattened by their corn and hay." Todd county: "In favorable seasons the average yield of tobacco is 900 pounds. A good hand will make 3,000 pounds, which has been sold here for several years past at $12 to $15 per hundred-weight. Owing, however, to the change in the labor system, the quantity raised is annually declining." In Graves the yield and profit is about the same as in Todd county.

In Lewis county, "the best bottom lands yield from 60 to 100 bushels of corn to the acre, and wheat averages 15 bushels." Scott county: "We raise an average of 40 bushels of corn, 30 bushels of oats, and 10 to 15 bushels of wheat; this being one of the noted 'blue grass' counties, is largely devoted to grazing, and our surplus grain is consumed by stock during the winter." Laurel county: "Corn is the special crop, average 25 bushels. I last year raised on

two acres, well manured, 120 bushels of good corn." Whitley county: "Corn and wheat, crops eaten and fed to horses, cattle, and hogs, which are driven on foot to foreign markets." Oldham county: "Indian corn the chief crop; 40 bushels to the acre; net profit, $12 to $15 per acre." Henry county: "The greatest profit is derived from the corn crop, which is fed to stock, mules, steers, and hogs, affording good profits." Fayette county: "If we have any specialty it is in the fine quality of our stock; probably no section of our country can boast of finer stock than we have, and, in my judgment, mules, horses and cattle attain a higher degree of perfection here than in any other section of the Union" Boyle county: "This is a stock-raising county; but little grain is sent out of the county, most of the corn and grass raised being fed to stock. This is one of the principal mule-raising counties in the State." Harrison county: "A large portion of the corn crop, nearly all the rye and a small portion of the wheat is distilled into whiskey, there being several large distilleries in the county, making a fine market for grain, they paying this season $1 for corn and $1 15 for rye."

5. Many varieties of wheat are cultivated in Kentucky, among them white and red Mediterranean, blue stem, red May, Walker, golden chaff, smooth chaff, Tennessee, New Orleans, Rock hill, Tappahannock, Kentucky white, Georgia white, blue straw, &c., &c.; the red and white Mediterranean, blue straw, red May and Tappahannock being the varieties generally preferred. The Mediterranean is esteemed for its uniform hardiness, being less apt to freeze out than most other varieties. The white yields the most, but the red is considered the surest crop, and hence more extensively grown. In Henry county the white is preferred, "because it yields larger crops, commands higher prices, and will stand much longer after it is ripe without becoming straw-fallen or injured." Our Fayette correspondent says:

> The white varieties, when escaping rust, yield larger crops than the red, but in consequence of their more succulent straw, are much more liable to this disease and are accordingly rendered valueless; the red Mediterranean and amber yield less crops in a good season, but for a series of years are more reliable for a fair yield.

The almost universal opinion is that the white yields the largest crop under favorable circumstances, and makes a higher priced flour, but that the red is most reliable for all seasons, the former being more liable to injury by rust, the midge, &c. The red and white May, the Tappahannock, the Walker, the New Orleans, are valued for their early ripening qualities and their consequent escape from diseases and insects, to which later varieties are subject. The Tappahannock is proving successful in localities where introduced, and one correspondent says:

> The white May and the Tappahannock are preferred, the first named for its early maturity and general exemption from rust; the latter for its good yield and the preference given it in market, it usually selling 15 to 20 cents per bushel higher than other varieties.

Very little spring wheat is sown. A correspondent, however, says:

> The package sent me from the department produced so very finely that I shall sow the entire product (which was one bushel from a quart) next spring.

Wheat is generally sown broadcast from the middle of September to the middle of October, the drill being practically unknown in most of the counties, and where used putting in a small percentage of the seed. Harvesting commences as early as the middle of June, and is usually over the first week in July. But little attention is given to cultivation. In Russell and many other counties they "sow in corn land, scratching in among the corn stalks with a shovel plough, the yield being from four to ten bushels." Another correspondent says:

> The cultivation is slovenly; in land cropped with corn wheat is put in broadcast, and the ground run over with cultivators; clover, lea, and oat stubble is ploughed three to three and a half inches in July and August, the grain sown broadcast and harrowed in.

Our Ohio county reporter says:

> The amount of our crop varies from 5 to 25 bushels per acre; our failures in wheat crops

are owing more to bad culture than defects in soil or climate. I never sowed a crop in good time, soil, and manner, without getting a good remunerative crop.

In Fayette, "probably, the larger portion of the crop is grown on land from which a crop of corn has just been taken, though such land is considered the least reliable for a good crop; oat stubble, clover land, and land upon which hemp has been grown are believed to be the best. The ordinary mode is to break the land well with a two-horse plough; if broken early in the season it lies until sowing time, when it is cross-ploughed, sown broadcast and harrowed both ways. If first broken near sowing time it is sometimes harrowed before sowing, then ploughed in with a one-horse plough and harrowed once. Upon corn stubble it is sometimes sown upon the land without ploughing, but harrowed both ways with heavy harrows; others, after the sowing, plough and harrow it in, while others first use the two-horse plough, then sow and harrow." In 1866 the average yield of wheat in this State was but six and a half bushels per acre.

6. Blue grass is the almost universal grass of Kentucky, and the "blue grass region" is too well known as a grazing country to require lengthy notice at our hands. This grass is very hardy, and if not grazed after the first of August until winter, makes excellent winter pasture; stock doing well upon it, except for the short period it may be covered by snow. White clover, crab grass, fox tail, &c., are also found, while among the cultivated grasses successfully and profitably grown are herds grass, timothy, red top, orchard grass, clover, Hungarian grass, &c. While under favorable circumstances stock may be sustained nearly the whole year upon pastures alone, the average pasture season, when cattle will do well without other feed, ranges from seven to nine months; sheep subsisting longer, and frequently the entire year. The average cost of pasture per head is given at from $1 to $2 per month, and for foddering during the winter from $2 to $2 50 per month.

7. Fruit culture has not received much attention in Kentucky, there having been no market for the crop, while in some counties our correspondents think results have been indifferent and sometimes failures when the experiment has been tried. Most of our reporters, however, claim that all fruits suited to the latitude, such as apples, peaches, pears, plumbs, quinces, small fruits and berries, &c., will do well under proper care and cultivation, and prove highly remunerative. In some sections the worm and bug have been very destructive to orchards, and discouraged attempts at fruit growing. One correspondent writes:

All the principal northern fruits grow well here, particularly the apple, peach, plum, &c. But little attention has been paid to fruit until within the last few years, but farmers are now planting good orchards of choice fruits.

Hardin county: "About one-fifth of this county is as good a fruit region as can be found in the United States, being suited to apples, peaches, grapes and all varieties of small fruit; some of our peach orchards bearing fruit that this season commanded $6 to $7 per bushel in the Louisville market. Peaches are planted about one rod apart, and yield 1½ bushels of No. 1 fruit for the first crop. This fruit averages $3 per bushel." In some of the counties where fruit does not succeed well of late years, the failure is attributed to the reduction of the forests and consequent removal of the old protection during winter. In Jefferson county "the apple, peach, pear, and all small fruits do well, except the plumb and smooth-skinned fruits, which are damaged by the curculio. The Catawba grape has failed several years, and the Concord is taking its place. There are no farms exclusively devoted to fruit, but most farmers raise sufficient for family use and a surplus to send to market The prices received in Louisville have been remunerative." Our Fayette correspondent writes:

Fruit when made a specialty soon enriches its producer if he understands his business and attends to it. A German about 20 years ago purchased 20 acres of land and erected a small house. For a few years, until his peach orchard and vineyard came into bearing, he had a

small nursery, with the proceeds of which he supported his family. He is now worth not less than $30,000, made from the proceeds of his orchard and vineyard.

WEST VIRGINIA.

1. Unlike Virginia, and the other States in the south in which the involuntary labor system existed, West Virginia shows an increase in the value of lands since 1860 amounting to an average of 32 per cent. There is some difference in this appreciation in different parts of the State, the Pan Handle and Ohio river counties being generally above the average. Hancock, Tyler, Webster and Wood, are placed at 50 per cent. Nicholas, Grant, Cabell and Mineral, are the only counties returned at rates less than those of 1860. During the oil excitement in Wood and adjacent counties, prices of farm lands were at least 100 per cent. higher than in 1860. While the actual product of oil has been increased since 1865, wild speculation has subsided, and lands in this vicinity, except those known to be oil bearing, now average about five per cent. increase over prices of the period first mentioned.

2. In the Pan Handle counties wild land is unknown. All is included in farms, and timber reservations are generally occupied as sheep pastures, the underbrush being kept clear. These "woods pastures" are often quite valuable adjuncts to the arable portion of the farms. The unimproved land, or woodland, of Harrison, is held at $20 per acre. The soil, abounding in lime and clay, "will produce anything." The location of this county is central, with a railroad passing through it. Unimproved tracts in Wood county are placed at $6 per acre. The assessment of 1866 made the average over $9. In Marshall, on the Ohio, below Wheeling, unimproved lands are worth from $6 to $25 per acre; the growth is various and valuable, and the soil productive. Iron ore and coal also abound here. The average price of unimproved lands in Kanawha is $5 per acre. The surface is generally uneven, often declivitous, but the soil is rich and suitable for all farm products, and particularly for fruits. In Mason, hill lands are worth from $8 to $10 per acre; soil, clay, slightly impregnated with lime, productive in grasses, especially blue grass, which springs up spontaneously when the land is cleared. In Jefferson, the quantity of unimproved land in 1860 was 24,384, and it may now be put down in round numbers at 20,000, worth $6 per acre. It consists principally of land lying along the western slope of the Blue Ridge mountain, valuable for its timber, much of which is chestnut. Unimproved lands in Tyler are valued at $6 per acre, in Barbour $2 to $5; in Randolph $3, adapted to grass and grain; in Nicholas $2, in Cabell $2, suitable for grazing and fruit growing; in Grant $1, good for sheep pasture and timber; in Webster 75 cents, and in Wyoming 50 cents, valuable for grape culture and wool growing.

3. The mineral resources of West Virginia are too well known for particular comment. Nearly all of the counties in the State contain coal, iron and other minerals; coal in veins suitable for working is found in greatest abundance along the banks of the upper Ohio, in the hills along the course of the Monongahela and its branches, in the central counties of the State, in the Piedmont region east of the summit, in the Kanawha valley, and in all the counties south of that river. The coal lands of Guyandotte, being bituminous, cannel and splint varieties, cover nine-tenths of the Guyandotte valley, in horizontal strata in the hills, from 3 to 11 feet thick, aggregating in some hills 25 or 30 feet. Coal mining in Kanawha is represented as paying well. The inducement for employing capital under practical supervision is claimed to be very flattering, while complaint is made of the visionary character of recent coal and oil operations. Of Brooke our correspondent says:

The most valuable mineral, however, is bituminous coal, accessible by level adits over the greater part of the county. The stratum is four to five feet thick. In the hill fronting on the Ohio river it is about 200 feet above the river level, and the coal is let down by railways

to boats for shipment. Off from the river it is mined merely for home consumption. As soon as railways are made up the valleys an immense supply can be obtained. About 300 feet beneath the river level there is another stratum, some six or seven feet in thickness, of superior coal, which has been mined by shafts or galleries at Steubenville, and at Rust Run, on the opposite side of the river. A company was formed a short time ago to mine this coal at Wellsburg, our county seat, but they have as yet failed to commence. This coal is almost wholly free from sulphur, and on that account admirably fitted for working iron.

Iron ore of various descriptions, and of superior quality, abounds in many of the counties. It is worked in a few localities on the Baltimore and Ohio railroad, but development of the iron of the State can scarcely be said to have commenced. Other minerals are reported in every section of the State. Some of the best timber of the country is to be found here, of all the different kinds of oaks, black walnut, hickory, poplar, cherry, &c. A considerable trade in timber is already in progress in the river counties, and boat building is engaged in to some extent. The soil is generally productive, yielding well all farm products.

4. Few specialties in agricultural production are noted; the cereals are everywhere cultivated upon farms, and do well. The soil is generally well suited to wheat and corn; the irregularity of surface is the principal drawback to tillage. Forty bushels of wheat to the acre, with good culture, have been obtained in Webster. In the interior counties the principal market products are wool, sheep and cattle. In Hancock, Brooke and Ohio, where nearly as many sheep as cultivated acres are found, hay is worth $16 to $20 per ton, and is a principal crop, yielding, in many cases, three tons per acre. Fruit is a specialty on the Ohio river, to some extent; and tobacco is made a prominent crop on some farms. The following statistics of Ohio county will give an excellent idea of the capabilities of West Virginia soils, and of the ameliorating effect of sheep husbandry:

Ohio county has 37,487 acres of improved land; on this there are 40,050 sheep, 3,244 hogs, 1,441 horses, 1,408 cows, 246 oxen, 1,380 other cattle. The production was 20,048 bushels of wheat, 5,639 of rye, 138,430 of corn, 82,101 of oats, 22,072 of barley, 4,372 of buckwheat, 21,449 of Irish potatoes, 823 of sweet potatoes, 128,448 pounds of butter, 102,032 pounds of wool, 6,479 tons of hay, besides $54,420 of other products, excluding grapes and wines, which may perhaps reach $100,000 more. On 110,490 acres of land in Ohio, Brooke and Hancock, there are 102,072 sheep, nearly a sheep to each acre.

5. A great diversity of views prevails relative to varieties of wheat. Preference is given for Mediterranean in Tyler, Lewis, Mineral, Hancock, Webster, and Wyoming, on account of hardiness; for the Tappahannock in Kanawha and Marion; for the blue stem in Barbour, Nicholas, and Randolph; for the Lancaster in Jefferson; for the May in Wood.

The period of sowing is generally included in the latter half of September. In Mineral and Randolph, northern mountain counties, September 1st is the beginning of the planting season, and in the central and southern counties the season is often prolonged to October 15, and sometimes to the 20th. The harvesting is commenced in the Kanawha valley June 20; in the central and northern counties from June 25 to July 1. In most of the counties the drill is not used at all; in Tyler, Grant, Cabell, Ohio, Brooke, and others, a small percentage is drilled; probably the State would not average more than five per cent. of the acreage drilled. An increase of yield is reported in cases in which the drill is used. A common mode of culture is to plough fallow or corn stubble, sow on the furrows and harrow in. In some cases wheat is put in with the double shovel plough. In Tyler county, of 700 acres in wheat, 430 are ploughed, and, when sown, harrowed in; 180 after sowing are shovelled in, and 90 acres are drilled in.

6. The pasture grasses of West Virginia are blue grass, red-top, white clover, and crab grass. The length of the season for exclusive feeding in pastures is seven months; in a few mountain counties it is returned as six months; in a few others eight or nine months; at the same time it is true that cattle are win-

tered in pastures or forests with very little extra feed, and sheep often with none at all. On the 1st of April sheep may be seen in excellent condition, which have received little if any attention or fodder during the winter. The price of pasturage varies; increasing in accessible and improving localities. In Mineral the price reported for the season, which is comparatively short, is $2 50; in Grant, $4; in Barbour, Kanawha, Cabell, and other southern counties, $5; in Tyler, $7; in Jefferson, $8; in Mason and Brooke on the Ohio, $10; in Ohio county, $14 for cattle, and $17 for horses. The average will not exceed a dollar per month for the State.

7. Nearly all kinds of fruit do well. It is essentially a fruit-growing State. Apple-growing for the New Orleans market has long been a specialty of the river counties. Vineyards in the vicinity of the Ohio have proved exceedingly productive, and far more reliable than in the vicinity of Cincinnati. On the Kanawha, the soil, elevation, and climate, seem peculiarly adapted to grape-growing, and the hills of the southern part of the State are already sought for vine culture by Europeans who contemplate colonizing this region with vine-dressers from Europe. In the interior, in absence of transportation facilities, much fruit is dried for the market. In Braxton, the central county, the price obtained for dried peaches is $2 per bushel—if pared, $3; apples, 75 cents—if pared, $1 per bushel. Apples and pears are claimed to be best adapted to the soil and climate of Hancock county, the crops yielding a greater revenue than anything else raised from the ground. The Kanawha correspondent says:

> A neighbor told me yesterday he had an apple tree which frequently produced 40 bushels, but only every second year. Peaches will yield from four to eight bushels, but cannot be relied upon every year, as much as one year in three will miss.

The bell-flower, golden russet, Milam, and Rambo apples are general favorites, well suited to the river region, very productive and reliable. Peaches in Mineral county are reported at 50 cents per bushel. Of all fruits in Wood county, apples are the most certain and most profitable, and approach nearer to a staple; a good orchard of five or six acres sometimes yielding as much money as the remainder of a good farm. In Tyler 250 apple trees averaged $4\frac{3}{4}$ barrels, or 1,200 barrels worth $2,500. In Jefferson an average of 200 gallons of wine can be made from an acre of grapes, with moderate cultivation, and with a profit of 90 cents per gallon, equal to $180 per acre. There are some drawbacks, of course, as elsewhere. Early frosts occasionally change prospects of peaches and other fruits. It is noticeable that no correspondent complains of depredations of insects, with the single exception of the curculio upon plums in Harrison. Apples in this county will average a net profit of $600 per acre.

NUMBER AND PRICES OF FARM STOCK.

AMOUNT, IN TENTHS, AND PRICES OF FARM STOCK IN JANUARY, 1868.

Table showing the amount, in tenths, of the farm stock of the States named, in January, 1868, *compared with the amount in January,* 1867, *and the prices of the same in January,* 1868, *for the different ages.*

STATES.	HORSES.					MULES.				
	Average number of horses compared with that of February, 1867.	Average price per head of same under 1 year old.	Average price per head of same between 1 and 2 years old.	Average price per head of same between 2 and 3 years old.	Average price per head of same over 3 years old.	Average number of mules compared with that of February, 1867.	Average price per head of same under 1 year old.	Average price per head of same between 1 and 2 years old.	Average price per head of same between 2 and 3 years old.	Average price per head of same over 3 years old.
Maine	10.3	$38 91	$62 75	$86 95	$123 50	.....	.....	.....	.....	.....
New Hampshire	10.1	33 75	58 00	81 25	108 75	.....	.....	.....	.....	.....
Vermont	10.1	35 33	57 66	81 66	105 77	.....	.....	.....	.....	.....
Massachusetts	10.1	33 12	57 50	87 87	139 80	.....	.....	.....	.....	.....
Rhode Island	10	36 66	60 00	86 66	116 66	.....	.....	.....	.....	.....
Connecticut	10	32 25	54 75	86 25	113 70	.....	.....	.....	.....	.....
New York	10.2	41 36	64 92	97 72	133 33	10.1	$42 07	$63 57	$93 77	133 50
New Jersey	10.2	54 10	83 76	120 34	155 15	10.3	50 37	89 00	139 64	168 41
Pennsylvania	10	42 69	72 52	105 41	137 00	10.2	49 80	81 36	121 73	150 70
Delaware	10.3	41 66	63 33	96 66	136 66	10.7	40 00	70 33	101 66	150 00
Maryland	10.1	45 50	69 50	101 70	128 70	10.2	50 62	78 75	112 22	144 00
Virginia	10.3	34 11	53 63	81 85	113 50	9.9	41 33	65 44	104 78	131 97
North Carolina	9.9	32 02	51 35	76 12	100 57	10.1	36 37	59 74	89 86	116 25
South Carolina	9	31 44	52 11	79 44	109 00	9.4	35 55	59 56	97 44	122 00
Georgia	10.2	32 67	51 42	75 00	103 73	10.3	36 79	58 43	95 71	120 48
Florida	9.8	36 66	60 00	93 33	133 33	10	53 75	80 00	125 00	148 33
Alabama	10	30 92	52 42	75 00	110 18	9.7	41 16	60 41	90 66	120 00
Mississippi	9.7	25 12	47 75	60 15	98 33	9.7	35 91	52 08	78 76	99 62
Louisiana	9	20 50	29 50	49 00	85 33	9	50 00	60 00	82 50	100 00
Texas	10.4	12 09	20 53	30 48	44 98	10.2	20 11	29 96	44 28	59 31
Arkansas	11.7	27 58	41 00	60 92	80 76	11.4	30 45	47 90	63 27	87 07
Tennessee	10.8	38 33	59 27	78 54	103 20	10.1	40 75	65 33	94 56	116 45
West Virginia	10.9	35 53	56 81	77 33	101 67	10.1	37 50	58 33	83 33	112 14
Kentucky	9.6	33 67	50 14	70 38	92 05	10.5	39 77	60 34	84 83	107 89
Missouri	11.8	30 70	44 48	65 47	89 63	11.5	40 86	59 59	80 65	105 05
Illinois	10.7	33 80	53 83	75 60	105 12	10.8	42 59	64 57	91 56	120 81
Indiana	10.5	31 75	49 24	70 53	96 60	10.6	37 48	59 13	82 06	107 92
Ohio	10.5	35 06	55 48	78 99	107 14	10.2	40 18	64 31	91 35	119 23
Michigan	10.7	33 95	57 75	85 67	126 56	11.5	41 12	63 60	94 57	135 10
Wisconsin	11.3	41 36	65 15	98 17	143 79	10.8	43 78	71 15	111 00	155 00
Minnesota	12.3	43 55	68 44	98 61	126 53	10.4	46 22	71 89	110 10	141 91
Iowa	11	38 12	60 74	85 35	113 37	11.2	48 37	69 32	102 03	137 41
Kansas	11	31 17	47 33	65 92	91 92	9.1	39 42	60 42	84 58	115 42
Nebraska	11.8	33 25	62 70	90 00	120 45	9.3	36 62	73 00	104 71	144 33

Table showing the amount, in tenths, and prices of farm stock, &c.—Continued.

STATES.	OXEN AND OTHER CATTLE.					MILCH COWS.	
	Average number of oxen and other cattle compared with that of February 1, 1867.	Average price per head of same under 1 year old.	Average price per head of same between 1 and 2 years old.	Average price per head of same between 2 and 3 years old.	Average price per head of same over 3 years old.	Average number of milch cows compared with that of February 1, 1867.	Average price per head of cows at this time.
Maine	10.3	$15 75	$28 29	$46 33	$80 70	10	$47 91
New Hampshire	10.1	13 50	25 00	41 50	76 25	10.1	47 25
Vermont	9.9	13 16	27 00	44 37	73 77	10.2	48 33
Massachusetts	9.9	17 83	30 16	48 50	88 11	10.8	67 11
Rhode Island	9.7	17 00	28 00	43 33	80 00	10	58 33
Connecticut	10.2	17 75	29 50	48 00	68 75	10.6	62 50
New York	10.1	14 09	26 53	47 01	71 54	10.6	52 54
New Jersey	10.1	15 97	27 88	44 61	71 00	10.4	57 22
Pennsylvania	10.2	12 68	23 30	37 94	55 67	10.1	44 94
Delaware	10.7	11 66	20 33	32 66	48 00	10.5	48 66
Maryland	10	11 00	17 70	29 20	43 30	10.1	39 90
Virginia	9.8	7 52	13 34	21 97	32 64	10.3	28 11
North Carolina	9.8	3 63	6 75	10 97	15 97	10	19 02
South Carolina	9.1	3 58	5 94	11 30	17 66	9.3	18 66
Georgia	9.9	4 65	7 86	12 00	18 60	10.3	21 06
Florida	10	3 30	5 80	9 66	13 08	10.1	11 91
Alabama	9.5	3 63	7 73	11 15	17 15	9.7	19 50
Mississippi	9.1	5 26	7 46	11 93	17 06	9.8	19 53
Louisiana	8.3	4 33	6 33	10 00	14 00	7	16 00
Texas	9.8	2 43	3 69	5 88	8 56	9.9	10 29
Arkansas	10.4	4 05	7 18	11 48	16 97	10.8	20 76
Tennessee	10.5	4 58	8 08	13 47	21 06	10.4	25 08
West Virginia	10.9	11 23	19 73	30 93	40 90	10.8	34 87
Kentucky	8.9	10 25	18 38	28 90	37 93	9.5	35 25
Missouri	10.8	7 16	12 97	21 43	34 15	10.9	29 04
Illinois	9.9	9 75	17 59	28 27	42 07	10.2	36 62
Indiana	9.9	8 95	17 30	28 68	42 06	10	36 31
Ohio	9	11 45	21 01	34 38	51 50	10.3	43 07
Michigan	10.8	10 92	20 30	30 38	54 17	10.8	42 30
Wisconsin	10.4	8 98	16 80	29 56	53 91	11	35 82
Minnesota	11.4	8 94	16 77	29 94	51 50	13.2	32 82
Iowa	10.7	8 67	15 28	25 21	42 41	10.8	31 10
Kansas	10.5	9 08	15 08	25 50	37 08	10.9	29 88
Nebraska	12.3	9 60	18 20	31 75	46 25	13.2	35 18

Table showing the amount, in tenths, and prices of farm stock, &c.—Continued.

STATES.	SHEEP.			HOGS.		
	Average number of sheep compared with that of February, 1867.	Average price per head of same under 1 year old.	Average price per head of same over 1 year old.	Average number of hogs compared with that of February, 1867.	Average price of same per head under 1 year old.	Average price of same per head over 1 year old.
Maine	8.4	$2 20	$2 95	9	$8 74	$18 95
New Hampshire	8.5	2 12	2 70	8.7	9 66	20 00
Vermont	7.8	2 18	3 00	8.6	9 43	17 91
Massachusetts	8.8	2 18	3 87	9.7	9 58	22 70
Rhode Island	9.9	2 66	3 90	9	11 00	20 00
Connecticut	9.2	3 00	4 37	9.4	10 00	20 00
New York	9.3	2 50	3 48	9.9	6 91	14 75
New Jersey	10.2	3 08	4 35	10	8 31	16 73
Pennsylvania	9.9	2 29	3 29	10.3	6 29	12 76
Delaware	9.7	2 50	3 66	11	7 00	12 00
Maryland	9.9	3 02	4 22	9.5	4 88	10 22
Virginia	9.4	1 93	2 67	9.2	3 66	7 68
North Carolina	9.6	1 15	1 83	8.4	2 59	6 05
South Carolina	8.3	1 34	2 05	6.7	3 22	7 52
Georgia	9.1	1 24	1 87	8.8	3 45	7 75
Florida	8.3	1 55	2 25	9.6	3 16	7 41
Alabama	9.3	1 11	1 98	8	2 43	7 86
Mississippi	7.6	1 02	1 69	7.5	2 88	6 93
Louisiana	6.7	87	1 41	7.5	2 25	3 75
Texas	8.8	1 23	2 08	8.4	1 61	3 65
Arkansas	10.3	1 82	2 98	12.3	2 52	7 18
Tennessee	10.1	1 38	2 01	11.2	2 83	6 71
West Virginia	10.9	1 56	2 55	11.4	2 00	4 87
Kentucky	9.6	1 85	2 70	9.2	2 80	6 31
Missouri	12.7	1 53	2 35	13	2 35	5 79
Illinois	9.3	1 64	2 39	9.6	3 22	7 33
Indiana	9.2	1 41	2 04	10.1	3 28	6 84
Ohio	9.0	1 81	2 65	9.7	4 11	8 93
Michigan	9.3	1 81	2 70	10.1	4 27	9 22
Wisconsin	10.3	1 92	2 86	9.8	3 90	8 59
Minnesota	9.9	2 03	2 89	11	4 73	10 08
Iowa	10.8	1 58	2 29	10.5	3 29	8 21
Kansas	9.4	1 50	2 32	11	4 70	10 21
Nebraska	10.6	2 27	3 45	11.4	4 50	12 10

UNIVERSAL EXPOSITION OF AGRICULTURAL IMPLEMENTS.

Under the auspices of the Belgian government, the Agricultural Society of Brabant proposes to hold a universal exhibition of agricultural implements and domestic animals, at Brussels, commencing June 20, 1868. Prizes and awards for competition, which is free to exhibitors of all nations. The society guarantees the cost of transportation on all Belgian railways of all contributions from foreign countries. Exhibitors are requested to make application in April, to the secretary of the society, at No. 36 Rue Verte, Brussels. Implements should be directed: The *Commission Directrice de l'Exposition d'Agriculture, Champs des Manœvres, at Brussels.* They will be received from June 12 to 16. For further information address the secretary of the society.

THE COTTON SUPPLY.

The extraordinary efforts made in Europe to make good the United States deficiency by stimulating production in Egypt, Brazil, China and India, were to such an extent successful that the south seemed likely to be ruled out of the list of cotton-yielding localities. This result, as soon appeared, was due to abnormal conditions, which began to pass away with the war which gave rise to them. With the stimulus of from 40 to 50 cents per pound in 1865, unusual activity in the southern States was directed to cotton culture in 1866, notwithstanding loss of slave labor, poverty of planters, neglected state of farms, and a general feeling of discouragement. The result was 1,900,000 bales. In the spring of 1867, with a reduction in price amounting to about fifty per cent., it was still determined to persevere, and farms being in better condition, and accessions of capital from the north having been enjoyed, the acreage of 1867 was somewhat larger, and the season being better, a still better result was attained, which bids fair to exceed the estimate of this department, and reach beyond 2,500,000 bales, more than half the result of the best cotton crop ever known. With a continuous fall in price, and the 2½ cents tax, it entailed positive loss in most cases, and left a cloud of gloom upon the whole cotton section. Under these circumstances the feeling has been prevalent, and almost universal, that cotton planting in the United States must for a time be abandoned as a general crop. This view was too hastily adopted, with little consideration of the facts in the case. Already receding prices were telling upon the supply from India and other foreign sources, while the products of American cotton was rapidly increasing. In 1866, to be sure, the British imports of India cotton exceeded her importation from this country, but now, for the first time since the beginning of the war, supremacy is again attained, if not the same measure of superiority, the old place at least, as the greatest cotton-exporting country in the world. The official account of British imports for 1867 shows this, and it is a fact of which this country should be proud, but still more proud if an equal quantity could be manufactured here. The following figures will show how the tables have been turned upon India in a single year, and how Great Britain has increased

her American purchases, while those of India, China, Turkey, Mexico, and other countries have been diminished, with a diminution of the total importation:

Cotton, raw, from—	1866.	1867.
	Cwts.	*Cwts.*
United States	4,643,370	4,715,733
Bahamas and Bermuda	7,515	10,623
Mexico	3,145	22
Brazil	611,808	628,761
Turkey	92,996	57,024
Egypt	1,055,900	1,127,541
British India	5,493,770	4,449,259
China	52,120	4,707
Other countries	335,249	278,981
Total	12,295,803	11,272,651

For the purpose of comparison, the following statement in pounds of British imports for 1850, 1860, and 1867, respectively, is appended:

	1850.	1860.	1867.
United States	493,153,112	1,115,890,608	528,162,096
Brazil	30,299,982	17,286,864	70,421,232
Mediterranean	18,931,414	44,036,608	----------
Turkey	----------	----------	6,386,688
Egypt	----------	----------	126,284,592
British East Indies	118,872,742	204,141,168	498,317,008
British West Indies	228,912	1,050,784	----------
Bahamas and Bermuda	----------	----------	1,189,776
Other countries	2,090,698	8,532,720	31,775,520
Total	663,576,861	1,390,938,752	1,262,536,912

Not only has this country regained its superiority in quantity, but in price the advantage is still more marked. In Liverpool, February 27, New Orleans middling commanded $9\frac{9}{16}d.$; fair, $10\frac{1}{2}d.$; Surat middling, fair, $7\frac{5}{8}d.$; fair to good fair, $8\frac{1}{8}$ to $8\frac{3}{8}d.$; Madras middling, fair, $7\frac{1}{4}d.$; good fair, $7\frac{1}{2}$ to $8d.$ This shows a difference of from four to five cents per pound, or about twenty-five per cent., between the gross returns of Indian and American cottons. With this advantage, exemption from tax, and a self-sustaining system of agriculture in the south, in which cotton shall play only an incidental part, there is no reason why we cannot grow again five millions of bales, *and manufacture it all*, at no very distant day, for the supply of the markets of the world.

The stock on hand of India, China, and Japan cotton, February 27, 1868, was as follows:

Year.	Surat.	Madras.	Bengal.	China.	Total.
1868 ..... bales..	3,808	48,602	18,456	52	76,974
1867 ..... do...	2,366	32,499	14,677	1,256	53,138
1866 ..... do...	4,313	52,940	1,864	271	60,548

The quantity afloat at the same date was only 125,422 bales, against 179,135 at the same date last year, a decrease of 53,713 bales, or thirty per cent. This

is a favorable indication of an upward tendency in prices, and a sufficient reason for an increase in prices of our cotton during the last sixty days, which will doubtless add $20,000,000 to the gross proceeds of the present crop.

The bottom of the market has been reached. Those who feared it would fall out entirely are reassured; the future of cotton looks more encouraging, and there is a strong probability of a fair crop in 1868.

It is gratifying to note, while the cotton supply of Great Britain was decreased 1,023,252 hundred weight, or more than eight per cent, the demand for manufactured goods was increased, as shown by exports, as follows: Yarns, pounds, from 138,804,538 in 1866, to 169,356,528 in 1867; thread, pounds, from 6,355,458 in 1866, to 6,506,851 in 1867; yards of cotton goods, from 2,575,698,138 in 1866, to 2,830,417,875 in 1867, valued respectively at £57,903,200 and £53,132,831.

The amount paid in 1866 for imports of raw cotton was £70,665,438; in 1867, £48,338,241; a decrease of £22,327,197, or $111,000,000; the price per pound averaging within a fraction of twenty-eight cents in 1866, and but seventeen and a half cents in 1867. The total value of exports of cotton goods, yarns and threads, in 1867, was $359,000,000.

AGRICULTURE IN SOUTH JERSEY.

The following extracts from a letter of Edward Vanmeter, of Salem, New Jersey, to the Commissioner of Agriculture, relate to the agricultural prosperity of that county:

We have over 1,450 farms in our county, which will average probably one hundred acres each. Timber is becoming scarce with us. There are many thousand acres of brush or bush timber land along the southeasterly line of our county, known now as the third, fourth and fifth growths, which will furnish fuel for a long time to come, as they will bear cutting every twenty-five years. It is interspersed with chestnut, which is better than cedar for rails, and marl of a superior quality has been discovered in different localities, so that the soil, though apparently valueless for farming operations, except in a few favored spots, is really valuable property. Saw-timber for lumber and building purposes will soon be among the things of the past with us. The most of our farms along the Delaware river and the inland creeks have meadow. Some of this meadow is classed as number one for grazing purposes. That portion called inferior is noted for producing herdsgrass. The cattle will not eat the hay; it is thrown, after threshing, into the barn yard for manure, but the seed is always in great demand, varying in price from fifteen cents per bushel in former years, to one dollar and a half at the present time. The returns of some of our farmers the past season for herds seed have been unexpectedly large, some farms yielding from $1,000 to $3,000, according to the number of acres in meadow.

Our people everywhere seem encouraged, and we are this day, in the county of Salem, certainly, in one sense of the word, "a landed aristocracy;" and wherever there is a farmer who is industrious and attentive to his business, he is on the sure road to prosperity and wealth.

Land is steadily advancing in price. A farm near this city, that was sold nineteen years ago for one hundred dollars per acre, known as the "Tyler" grazing farm, contained one hundred and eighty three acres upland and meadow, and was called a dear farm. The late owner died recently and the farm was sold for two hundred and forty-seven dollars per acre, cash.

A good farm horse is worth two hundred dollars; a road nag from two hundred and fifty to five hundred dollars. A milch cow that will make six to eight pounds of butter per week is worth from one hundred to one hundred and twenty-five dollars. We have cows of the native stock that will make ten pounds of butter per week. I own two that will do it. A bull four years old, of good stock, Durham, Devon, or Grade, is worth from seventy-five to one hundred dollars. A Thorndale bull sold this winter at public sale, about five miles from this city, for four hundred and sixty dollars: he is said to be a very superior animal.

PORK PACKING.

The following quotations relative to pork packing in Cincinnati are from the Cincinnati Price Current:

The whole number reported by the packers is 366,481 head, which does not include those packed in October. The following shows the whole number of hogs packed in this city for nine years:

Years.	No.	Years.	No.
1860	434,499	1865	350,600
1861	433,799	1866	354,079
1862	474,467	1867	462,600
1863	608,457	1868	366,481
1864	370,623		

The following were the average weight and yield of leaf lard per hog for the past nine seasons:

Year.	Average weight.	Yield of lard.	Year.	Average weight.	Yield of lard.
	Lbs.	*Lbs.*		*Lbs.*	*Lbs.*
1859–'60	189	23	1864–'65	201 1/8	24 1/8
1860–'61	221 5/10	28 9/10	1865–'66	238 8/11	32 13/16
1861–'62	224 3/4	29 5/8	1866–'67	232 7/7	30 1/2
1862–'63	203	25 3/3	1867–'68	210 3/17	25 5/8
1863–'64	88 11/12	23 1/8			

The following shows the average price of hogs per cental, net, the last fifteen seasons:

1853–'54	$4 44 1/2	1861–'62	$3 28 5/8
1854–'55	5 00 3/4	1862–'63	4 45
1855–'56	6 04 3/4	1863–'64	7 00 1/2
1856–'57	6 23 3/4	1864–'65	14 62 1/8
1857–'58	5 16 1/2	1865–'66	11 90 5/8
1858–'59	6 58 1/8	1866–'67	7 52 1/2
1859–'60	6 21 1/8	1867–'68	8 25 1/4
1860–'61	5 97		

The following statement relative to pork packing at Chicago is from Messrs. Millwood & Co.'s circular of February 22:

We have received the returns from some twenty-three packers, comprising the largest and about the smallest in the city. Their packing sums up about 450,000 head; their average net weight, 190 1/4 pounds; and their average yield of lard, 27.36 pounds per head. We have yet some twenty packers to hear from, and we calculate their returns will increase the total packing to nearly, if not quite, 800,000 head, but there is little chance of any change in the average weight of the hogs or the yield of lard per head. Last year the average weight was 227 3/8 and the average yield of lard 38 pounds per head. Calculating our present year's packing at 800,000 head, against 635,732 last year, we should have some 7,500,000 pounds more weight than we had then, but the yield of lard would be some 6,750 tierces less than was made last season. The packing to the present time sums up 772,727, against 633,000 in 1867 and 463,450 in 1866. Several of the dressed-hog packers are still at work. Some are purchasing 200 to 500 daily, and their operations retard the summing up of the season's packing.

The following is the recapitulation of the number packed in the northwest in two seasons:

	1866–'67.	1867–'68.
Ohio	637,382	557,809
Illinois	851,945	1,072,553
Indiana	329,291	323,978
Iowa	115,441	177,044
Wisconsin	135,060	163,495
Missouri	233,230	328,611
Kentucky	188,442	157,880
Grand totals	2,490,791	2,781,370
		2,490,791
Increase in number		280,579

The average weight of hogs and the yield of leaf lard per hog for each State compare with last season as follows:

	Average weight per hog.		Yield of lard per hog.	
	1867.	1868.	1867.	1868.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*
Ohio	234½	204½	31⅛	24⅛
Indiana	232⅜	205⅝	31⅜	22⅛
Illinois	231⅜	202⅜	28	22⅝
Kentucky	228	206⅙	27	22
Missouri	226½	208⅞	31½	21½
Iowa	231¼	199¼	29⅞	21¼
Wisconsin	218⅗	197	31½	21

The general averages for all are—of hogs, 201 pounds; and of leaf lard, 20¾ pounds; which compare with the last two seasons as follows:

	Hogs.	Lard.
	Lbs.	*Lbs.*
1866	231 3/10	31¼
1867	232¼	29⅜
1868	201	20¾

Pork, pounds, last year	577,863,512
Pork, pounds, this year	558,955,470
Decrease in pounds this year	18,908,042

This is equal to a net decrease in the crop of 3½ per cent., and makes the crop, as regards the packing in the west, equal to 2,408,741 hogs of last season's average, not including the falling off in the shipments to the east during the packing season, which would further materially reduce the crop.

BUSINESS AND RESOURCES OF DENVER.

The influx of population and development of mining and other enterprises in the Rocky Mountain section is stimulating agriculture in the west to a wonderful degree. A communication from the Board of Trade of Denver, Colorado, contains the following statement of the business of that place for the year ending October 31, 1867, and is mainly derived from official figures in the assessor's office:

Gross sales of merchandise	$5,946,000 00
Cash paid for freight	2,171,000 00
Pounds of freight received	17,122,000
Pounds of corn and wheat sold	12,638,000
Sacks of flour sold	70,386
Cash value of lumber sold	$850,000 00
250 buildings erected, valued at	722,650 00
Cash value of goods manufactured in Denver	887,000 00
Cash receipts for passengers by stage lines	591,801 00
Cash receipts for express matter	168,976 00
*Gold shipped by Wells, Fargo & Co	1,560,000 00
†Gold bought by banks	604,000 00
Gold and silver received by United States branch mint	289,158 70
Average cash deposits in banks	741,000 00
Average loans and discounts by banks	398,000 00
Eastern exchange sold by banks	8,301,000 00
Amount of cash paid over bank counters	77,870,000 00

The city engineer estimates the water-power of South Platte river, between two points named in Denver, in a total fall of 113 feet, as equivalent to 6,312 horse-power.

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*This amount does not represent the yield of gold for the Territory, as over one-half the gold passes to the east in the hands of private parties.

†The principal yield of gold is from the counties of Gilpin, Clear Creek and Summit, and nearly all the gold from those counties is purchased at Central City.

Population, area, abstract of acreage under crops, &c., and number of live stock in each division of the United Kingdom.

Population, &c.	Years.	England.	Wales.	Scotland.	Total for Gt. Britain.	*Ireland.	Isle of Man.	Channel islands.		Total for United Kingdom.
								Jersey.	Guernsey, &c.	
Total population	1866	20,276,494	1,187,103	3,136,057	24,599,654	5,571,971	52,469	55,613	35,365	30,315,072
Total area, (in statute acres)	1866	32,590,397	4,734,486	19,639,377	56,964,260	20,322,641	180,000	28,717	17,967	77,513,585
ABSTRACT OF ACREAGE.										
Under all kinds of crops:										
Bare fallow and grass	1866	22,236,737	2,284,674	4,158,360	28,679,771	§15,550,231	82,902	20,357	11,999	44,345,260
	1867	22,932,356	2,519,170	4,379,552	29,831,078	§15,542,208	84,498	20,355	12,958	45,491,097
Under corn crops	1866	7,365,170	521,074	1,366,540	9,252,784	2,174,033	27,266	3,142	2,041	11,459,266
	1867	7,399,347	521,404	1,364,029	9,284,780	2,115,137	27,039	2,827	2,157	11,431,940
Under green crops	1866	2,759,912	139,265	663,257	3,562,434	1,481,605	12,208	5,253	2,938	5,064,438
	1867	2,691,734	138,387	668,042	3,498,163	1,472,252	12,670	5,636	3,075	4,951,796
Under bare fallow	1866	760,979	109,878	94,080	964,937	25,419	8,357	2,552	372	1,001,637
	1867	753,210	86,257	83,091	922,558	26,191	1,990	2,550	709	953,998
Under grass, clover, &c., under rotation	1866	2,296,087	256,722	1,141,415	3,694,224	1,601,423	25,309	3,205	886	5,325,047
	1867	2,478,117	300,756	1,211,101	3,989,974	1,658,451	26,884	3,250	874	5,679,433
†Permanent pasture not broken up in rotation	1866	8,998,027	1,257,721	893,066	11,148,814	10,004,244	9,762	6,205	5,762	21,174,787
	1867	9,545,675	1,472,359	1,053,285	12,071,319	10,057,072	15,915	6,092	6,143	22,156,541
‡PERCENTAGE OF ACREAGE.										
Under corn crops	1866	33.1	22.8	32.9	32.3	14.0	32.9	15.4	17.0	25.8
	1867	32.3	20.7	31.1	31.1	13.6	32.0	13.9	16.7	25.1
Under green crops	1866	12.4	6.1	15.9	12.4	9.5	14.7	25.8	24.5	11.4
	1867	11.7	5.5	15.3	11.7	9.2	15.0	27.6	23.7	10.9
Under bare fallow	1866	3.4	4.8	2.3	3.3	.2	10.1	12.5	3.1	2.3
	1867	3.3	3.4	1.9	3.1	.2	2.4	12.5	5.5	2.1
Under grass, clover, &c., under rotation	1866	10.3	11.2	27.4	12.9	10.3	30.5	15.8	7.4	12.0
	1867	10.8	11.9	27.7	13.4	10.7	31.8	16.0	6.7	12.4
†Permanent pasture not broken up in rotation	1866	40.5	55.1	21.5	38.9	64.3	11.8	30.4	48.0	47.7
	1867	41.6	58.5	24.0	40.5	64.7	18.8	30.0	47.4	48.7
Total	.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
ABSTRACT OF LIVE STOCK RETURNED.										
Total number of cattle	1866	3,307,034	541,401	937,401	4,785,836	3,746,157	18,687	12,037	6,976	8,569,693
	1867	3,469,026	544,538	979,470	4,993,034	3,702,378	18,672	10,081	7,308	8,731,473
Total number of sheep	1866	15,124,541	1,668,663	5,255,477	22,048,281	4,274,282	55,954	517	1,214	26,380,248
	1867	19,798,337	2,227,161	6,893,603	28,919,101	4,826,015	70,958	529	1,348	33,817,951
Total number of pigs	1866	2,066,299	191,604	219,716	2,477,619	1,497,274	10,956	6,332	5,599	3,997,780
	1867	2,548,755	229,917	188,307	2,966,979	1,233,893	7,706	5,804	6,718	4,221,100

PROPORTIONATE NUMBER OF LIVE STOCK TO EVERY 100 ACRES UNDER CROPS, FALLOW, AND GRASS.										
Cattle	1866	14.9	23.7	22.5	16.7	24.1	22.5	59.1	58.1	19.3
	1867	15.1	21.6	22.4	16.7	23.8	22.1	49.5	56.4	19.2
Sheep	1866	68.0	73.0	126.4	76.9	27.5	67.5	2.5	10.1	59.5
	1867	86.3	88.4	157.4	96.9	31.1	84.0	2.6	10.4	74.3
Pigs	1866	9.3	8.4	5.3	8.6	9.6	13.2	31.1	46.7	9.0
	1867	11.1	9.1	4.3	9.9	7.9	9.1	28.5	51.8	9.3
NUMBER OF PERSONS FROM WHOM RETURNS WERE OBTAINED.										
Occupiers of land owning live stock, and occupiers of land only	1867	338,588	52,072	78,792	469,452	About 600,000	2,329	.....	.....	.....
Owners of live stock only	1867	7,457	572	4,629	12,658		100	.....	.....	.....

* For detailed returns for Ireland see Register General's Annual Reports, laid before Parliament.
† Exclusive of heath or mountain land.
‡ The percentage of acreage is exclusive of hops in Great Britain and flax in Ireland.
§ Including under flax 263,507 acres in 1866, and 253,105 acres in 1867.

CULTURE AND PRODUCTS OF THE VINE.

The following is a report, to the United States commission at the Universal Exposition of Paris, in 1867, of the committee "on the culture and products of the vine:"

The exhibition of wines at the Universal Exposition of 1867 was large. Every wine-growing country of Europe, as well as Australia, Canada, California, and other sections of North and South America, were represented. As there were no jurors from the United States, our American wines were not subjected to so full and fair an examination as they were entitled to, and to remedy this omission a special committee, consisting of the undersigned, was appointed by the Board of Commissioners to make an examination of the wines of our own and other countries, and to report especially with reference to wine growing in America. To properly judge, however, of the different kinds, of the qualities, cost, sanitary influence, and adaptability to our country—points upon which we would have been glad to report more fully—would require more thorough tasting and more time than the committee could command, or had a right to demand from the courtesies of foreign exhibitors or commissioners.

As regards French wines, full reliance cannot be placed on what is furnished to the American traveller at hotels or cafés, or even what is sold him at the shops, no matter what price he pays. It would, however, be doing French wines a great injustice to judge them by the qualities sold in this way, or exported to America. The great body of American consumers have palates as yet so unskilled, and the merchants of Bordeaux, and fabricators and imitators are so adroit, that it seems impossible for the honest wine grower here to come into such relations with the wine drinkers there as shall secure to the latter the benefits, sanitary and moral, which the French people themselves derive from the pure juice of the grape so abundantly produced in this country. It is not an unusual practice for dealers to buy of producers in the back country a coarse, deep red wine for 30 cents per gallon, and a strong white wine for 45 cents per gallon, mix and bottle them, and send them abroad labelled with all the high-sounding names of "Medoc," to sell at enormous profits to unsuspecting foreigners.

Further south than Bordeaux, in the country about Montpelier and Bezires, an inferior article, but perfectly pure, can be obtained of the producer at five and six cents per gallon, or one cent per bottle. Of late years, and since the abatement of the grape disease, the production of France has been very large, the 4,000,000 of acres in cultivation yielding an average of 1,200,000,000 of gallons, which would give to every man, woman, and child in the country, a half bottle-full every day, even after allowing 200,000,000 of gallons for exportation.

Owing, perhaps, to the intimate relations between America and Germany, our wine commerce with that country is conducted in a much more satisfactory manner. A good deal of excellent German white wine now makes its way to us, and is highly appreciated.

Hungary, whose product is second to that of France only, can supply a wide range of varieties, and at prices extremely reasonable. As the Hungarian producers seem to know, as yet, but little of chemistry, we suppose their wines to be generally pure, and as they are not yet fully introduced into the markets of the world, we should think they might be advantageously purchased to a greater extent than has yet been done.

Besides the sherry, of which we consume so largely, Spain has an abundant and rich vintage with which American consumers would be better acquainted if her merchants had more of the enterprise of those of Bordeaux.

Portugal also produces plenty of excellent and pure wines of which we know little, for hardly a drop is allowed to leave the country without being so strongly brandied as to lose its character as a wine, and become rather a spirituous liquor

Port wine is repeatedly dosed with spirits until it contains at least as much as 24 per cent. of alcohol. Fifteen years' age is required before it is fit to drink, not because the wine is slow to ripen, but because the spirit needs to remain 15 years before the disturbance it causes can subside, and the antagonistic ingredients of the mixture harmonize.

Notwithstanding bold and persistent assertions to the contrary, it has been satisfactorily proven to your committee that the adulteration is made not to preserve the wine, but solely to make it sweet and stimulating.

As America is destined to become a great wine-producing country, her people ought to be better acquainted than they are with the higher grades of foreign wines, but they have as yet drunk so little of these, that their standard of excellence remain comparatively low. Now, except in California, none of the European vines will grow in America, and we are compelled to search in our forests, and develop in nurseries and vineyards the varieties which are in the future to be our reliance for competing with foreign producers, and finally, it is to be hoped, emancipating ourselves from them altogether. Of course then the higher our standard of taste is, that is, the higher our aim, the better will be our success. Our vine growers have much more to learn of the character and quality of good wines than they have of cultivation and manufacture, for really, as to the preparation of the soil, planting, cultivating, pruning and training the vines, gathering, selecting, and pressing the fruit, fermenting and keeping the wine, (white wine, at least,) our experienced vignerons have but little to learn of European rivals.

Our American vineyards compare very well with those of France, and so do our cellars, presses, and casks, so that an elaborate report on methods would be of but little benefit, and might even mislead, for there seems to be no one method in use here, in any stage of vine-raising or wine-making, concerning which there is not a confusion of practice and a conflict of theory, such as it would be hopeless to attempt to reconcile. Probably sound reasons for much of this diversity may be found in peculiarities of soil and varieties of vines that are local and special, and with which we have nothing to do. Still, a pretty thorough tour among the vine districts of France has not been wholly barren of suggestion.

SOIL AND EXPOSURE.

The soil of Medoc, where stand "Chateau Margeaux," "Chateau La Fitte," and "Chateau La Tour," is a bed of coarse gravel, among whose pebbles the eye can barely detect soil enough to support the lowest form of vegetable life. In the vicinity of Bezires, on the other hand, the land is rich and strong enough to yield any kind of a crop; yet Medoc grows wine that often sells for ten dollars per gallon, while that of Berzires sometimes sells for the half of ten cents per gallon. In Burgundy there is a long hill, on whose dark red ferruginous limestone sides a wretched thin covering of earth lies, like the coat of a beggar, revealing, not hiding, the nakedness beneath. Here stand little starveling vines, very slender and very low; yet here is the celebrated "Clos Vaugeot," and this is the hill, and these are the vines that yield a wine rivalling in excellence and value that of Medoc, and to the fortunate proprietor the *Coté d'or* is what it signifies, "a hillside of gold." At its base spreads out a wide and very fertile plain, covered with luxuriant vines, whose juice sells from ten to twenty cents per gallon.

If you go further northward and examine the hills of Champagne, you will find them to be merely hills of chalk; and these instances only illustrate the rule derived not from them alone, but abundance of others, that, for good wine, you must go to a dry and meagre soil. Yet we should be sorry to have to extend the rule, and say that the poorer the soil the better the wine, for there are cer

tainly very few patches of ground in America that can match in poverty the mountains of Champagne, the hills of Burgundy, or the slopes of Medoc; nor would it do to conclude that manure should not be applied, for although some say it is hurtful to the wine in its quality, it is yet an open question whether this is so or not. Meanwhile the practice is to manure, although sparingly.

PREPARING THE GROUND, PLANTING THE VINES.

This is probably as well understood in America as in France. We usually break up to the depth of two feet and drain thoroughly. In many parts of France they trench to the same depth, but in many other parts this is impracticable, unnecessary, or injurious. Here, the distance between the vines is from eighteen inches to two feet, according to their size. We, however, are compelled, by the greater vigor of our vines, to place them five and six feet apart.

In Burgundy, Champagne, and some other districts it is the practice to renew the vigor of the vines, by laying down the cane and rooting the plant in a new place, which quite breaks up the original lines, so the plough cannot be used. This is doubtless a good way to renew the strength of the plant, but it is objected to by high authority, on the assumption that the older the stalk is the better the wine will be; on the other hand, Champagne wine dressers have attributed to this practice in a great measure their almost total exemption from the vine disease.

But then again, others attribute that exemption to the general and long established custom of spreading over the vineyards a bituminous shale containing sulphur, a well-known antidote; and here we would recommend most strongly to our countrymen a renewed and sustained effort to combat mildew with sulphur. The experience of France and other countries is entirely in its favor, and its use is still felt to be necessary, and is still kept up.

We think Americans have not been thorough enough, and patient enough. Let them try again, and this time let them begin early, and to be sure to follow carefully these rules on the subject, which have been hitherto much better promulgated than observed. On rich and level land, a common plan in some districts is to set out double rows of vines at wide intervals, in fields chiefly devoted to other crops. The free exposure to sun and air thus secured seems largely to augment the yield, and this will be understood by any one who has noticed the superior productiveness of such of his vines as grow bordering on a wide alley or other open space. This is very different from planting vegetables, &c., among the vines, which is a bad practice.

WIRE TRELLIS.

These are becoming quite popular here, as we think they are in America also, notwithstanding the cheapness of wood. The size of wire preferred is number 16, and but two wires are used. Our large vines would need three wires. They are stretched to strong posts set 20 feet apart, passing intermediately through holes of smaller posts or stakes. On the lower line, about 18 inches from the ground, the fruit-bearing wood is trained, while the upper line, about 18 inches above the other, supports the new wood. Many prefer to allow the fruit-bearing cane to do service two years, instead of one only, as is the practice in America. There is no doubt that with wire trellises the pruning, tying, pinching off, &c., can be much more cheaply done than where the training is to stakes, and from the way the clusters depend from the horizontal cane, it is easy to see that there must be also a superior access of sun and air, and a greater ease in gathering the vintage.

It is a common practice to go through the vines with a plough every fall, and throw up a good ridge of earth against the stalks. The Hungarians have a more effectual way of guaranteeing against the cold of their vigorous winters,

which is to lay the vines on the ground, cover them with straw, and on the straw throw the earth; without this it is said they could produce no wine at all. Our native grapes are generally hardy, and will live wherever their fruit will ripen, but occasionally there is a severe season which seems to touch the very heart of the wood, and so enfeeble it that it falls an easy prey to disease. It was noticed that the mildew set in with great destructiveness after the two hard winters of 1854 and 1856.

The thorough covering employed in Hungary would secure it against such occasional risks, and also might render it possible to grow European vines in our country. By its means, too, we could, perhaps, make the "Scupper" live in our northern States, and obtain from it a sparkling wine, of foam and flavor unsurpassed. From these considerations and others, we recommend to the wine-growers of our more northern States to lay down and thoroughly cover their vines regularly every fall; and to those in milder regions, to bank up the earth against the stalks as is done in France.

We have derived most of our instruction in vine-dressing from the Germans in whose native country there are no sunbeams to spare; and the celebrated "Risling" grape is said to hardly ever ripen, and thus, perhaps, we have been led to attach too much importance to letting the fruit remain on the vine as long as possible before gathering. If we have been in error, it would be well worth while to know it, for, besides the loss by shrinkage, the ravage of insects and birds, quadrupeds and bipeds, during the last fortnight of the vine-dressers' watchings' is most disheartening. Now, it is contended by good authority in France that early vintages are the best, and that it is important, not merely in regard to quantity but quality, also, to gather the fruit before it becomes over-ripe. Possibly what is true of white wine may not be so of red wine, to which last named kind attention is so widely directed in Europe. Here the proportion of white wine to red is very small, and it may be said that red is the rule, and white the exception.

Our wine-growers in America understand very well the principles to be observed in the manufacture of white wine, and many of them, as regards care and nicety, are as good models as need be desired. But it cannot be denied that the practice of selling the ripest and finest grapes for table use, and converting the unsalable into wine, prevails to a great extent among American vineyardists, and the result is the manufacture of much inferior wine. This has already injured the reputation of American wines, both at home and abroad. Of the much more complicated process of making red wine, however, American manufacturers are but little informed, for the reason that until recently they have had no grapes suitable for the purpose; but now that we have discovered those excellent varieties, the "Morton" and "Ives" seedlings, our estimate of the value of which has been very greatly raised by comparing wine from them with some of the highest grades of foreign productions, a few observations of methods of fermentation for red wine as practiced in France may be appropriate.

In France, they will make either white or red wine from the same grape; but in America they have grapes whose pulp is so rich in coloring matter that they yield a very pretty tinted wine without any further treatment than what is given to make white wine, and a pure white wine cannot be made from them; of this kind is the "Morton" seedling. Yet not for beauty alone do they put them through the process of fermentation on the skin, but because that process imparts qualities which, as affecting the palate, stimulation, digestion, &c., are quite different from what the other process imparts; many persons find red wine essential to their health, who cannot use white wine, and *vice versa*.

STEMMING.

The fruit having been gathered and selected, the next thing to do is to stem it. In "Medoc" and all the "Borderlais" this is invariably done. But in

"Burgundy" and other districts they commonly omit it, and throw stem and all into the vat; if, however, the season has been bad, and the stems remain unripe, they are of necessity excluded in whole or in part, lest they do more harm than good. The chief reason for putting in the stems is to correct the disease called "teitter," for which the turrin acid, &c., of the stem is thought to be an antidote. Fortunately we know comparatively little, as yet, of any wine disease, except acidity, but still it will remain for us to decide upon experience which of the two methods it is best to adopt. Probably we shall arrive at the same diversity of practice as is witnessed here. Stemming is usually done by rubbing the fruit upon a grating of iron rods, but the better way decidedly is a grating of wood. It is made of bars two-thirds of an inch square, carved into each other where they cross so as to bring them down to an even face, leaving openings or meshes two-thirds of an inch square. This is established like a table with four legs, with a rim around it about ten inches high, and a proper receptacle beneath to receive and carry off the stemmed fruit as it falls through and the juice which escapes. The table is four feet square and four feet high. About three bushels of grapes are put on to the grating, which four men with bare arms soon rub through, leaving the stems behind, which are then thrown into a small circular press like our hand cider presses, which extracts the juice of the few grains remaining on them. In this way four men can stem enough to make fifty barrels of wine per day. For one who makes but a small quantity, a deep tub and a three-pronged stick will do very well.

CRUSHING.

This is next to be done, by trampling the grape with the naked foot. It is said to be a better way than to use a large mill, for the reason the mill will crush the seed; but the seeds are not easily crushed, and a properly made grape mill need not bruise them in the least. At a well managed wine house, that of Messrs. Averons Brothers, in "Paulliac," they put the grapes to ferment with no further crushing than what is given them in the process of stemming, which experience has satisfied those gentlemen is all that is needed.

Treading out grapes with bare feet is well enough if the feet first be made clean, but probably no American will ever adopt the plan of crushing with naked feet, either clean or unclean, but will either rely on the crushing given in the stemming process, or use a mill, or a bucket and tripod.

FERMENTATION.

The crushed mass, with or without the stems, is next thrown into vats and allowed to ferment. The vats are large casks, generally without bulge, the largest at the bottom, and open at the top. In some of the large houses they are covered with loose boards; in others the boards are jointed and made hermetically close by plastering with cement or clay; in others there is merely a floating mass of stems; and in others there is no covering at all except the scum of stems, skins, seeds, &c., which rise to the surface.

After the fermentation has ceased and the wine becomes clear, it is drawn off and put away in close casks, which in France are almost uniformly of the size called "barrique," holding about fifty gallons. In Burgundy these are kept above ground and in the light until spring, and then put into cellars, while in the Bordeaux country they remain in the light in storehouses above ground until one or two years old, and then removed to dark rooms on the same level. A careful way of making red wine out of grapes not fully ripened is to allow it to remain in the vats for a sufficiently long time after fermentation to let the greenness held in suspense settle to the bottom.

At "La Tour," in the vintage of 1866, they allowed the wine to remain in the vat a whole month, though the fermentation was probably complete in half

of the time. After drawing off the remaining undissolved pomace, it is pressed and made into a wine of inferior quality. It is common in France, and it would be sometimes necessary in some parts of America to provide means of warming the wine-house up to at least 20 degrees of "Centigrade" or Fahrenheit, as well as to introduce steam heat into the vats themselves, which is done by means of a tin pipe, entering to the right of the faucet and a little above the bottom of the vat, bending to the bottom and rising again in the form of a letter U, and then passing out at the other side of the faucet, at the same distance from it, the steam entering at one end and the condensed vapor escaping at the other; but heat is only applied in cold seasons and when the grapes are badly ripened.

In France, the fruit of different varieties are commonly mixed together, and generally but little account is taken of "cesave" (variety) as compared with the quality of soil. Well-informed persons, however, are disposed to complain of the introduction, which has been quite general of recent years, of coarse varieties grown for quantity rather than quality.

There is one variety of vine commonly seen on rich soil and deemed unfit for poor ground, except where grown for brandy, as in Cognac, that may possibly be of value to us. It is called "la folle," (the crazy;) "en ragatt," (from enraged.) Except in its infancy it needs no stakes, but holds itself erect by the strength of its stalk, which is trained about one foot high, and from which the cane or branches shoot out with great vigor, like those of the osier willow pruned low. Every winter all the branches are cut back to two or three eyes, and during the season the ground is cultivated in the usual manner, but further than this it demands no attention. There is no summer pruning nor any tying, winter or summer It is never hurt by frost, is proof against all disease, and is unfailing in its fruiting, and yields, when in good condition, 12 to 15 gallons of wine per acre. Its most favorable soil is a sandy loam, and when grown on such its wine, which is quite strong, is worth 40 cents per gallon. Of that produced about Bordeaux a good deal is mixed with coarse red wine and made into claret for American consumption. Of itself it will not make red wine. It is possible that this hardy vine or grape will stand our severe winters, and, with or without winter covering, obtain a footing in American soil. If so, every farmer or whoever else can command a quarter of an acre of land might raise for his own table an abundance of good sound wine at a trifling cost. Generally it is a bad policy to introduce a coarse plant of any sort, but we have so vast a spread of land that is too rich for growing delicate wines, no matter what variety of plant is tried, and of late the mildew and rot have been so discouragingly fatal in many parts of our country, it might be well to give the "en ragatt" a trial, and, since we must drink the juice baptized with the names of "St. Julian," "Chatteur," "Margeaux," and all the saints of Medoc, we may as well enjoy the satisfaction and the very large profit of raising it ourselves.

Not only do the French mix different kinds of grapes in the vat and on the press, but they freely compound together different kinds of wine in every stage of maturity. This is done of course with great carefulness, and the success of the merchant in his business depending on his skill in concocting what will please the palate. Such combination may be agreeable to the taste of the consumer, and profitable to the merchant, but it may well be doubted if it is as good for the health as that which is simply natural, and made from one variety of grape.

A French wine-grower has introduced the Catawba into his vineyard, and uses its juice to mix in very small proportions with that of native grapes to give flavor. Any considerable addition of the Catawba's musky quality would be more than the French palate, trained to like only that which is negative, could very well bear.

When American wines were tested by the jury at the Exposition, the French

jurors, whose scale was from one to four, with a zero at the foot, generally complimented our Catawba with a zero, and they remarked that the more of the natural flavor the wine possessed, other things being equal, the lower they should estimate it. In America the very contrary is known to be the case. The German jurors, accustomed to wines of high bouquet, held quite different opinions from the French, and were much pleased with the American samples.

In regard to the more delicate wines of Europe which do not bear exportation, an important discovery is said to have been made by the distinguished chemist Pasteur, of the Institute, which is exciting great interest, and promises nothing less than to secure wine against disease and deterioration for an indefinite period, to enable it to be transported with safety any distance, and kept in any sort of storehouse. The best way to make known in America the discoveries of Mr. Pasteur would be to translate and publish his very valuable work, entitled "Etudes Sur le Vin," sold by Victor Masson & Sons, Place de l'Ecole de Medicine, Paris. Meanwhile we will give a brief synopsis of it.

After explaining at length the nature of the different diseases of the wine, acidity, bitterness, &c., tracing them all to vegetable parasites, and detailing his experiments in search of an agent to destroy the parasites, Mr. Pasteur arrives at the conclusion that they are effectually destroyed by heating the wine up to a point between fifty and sixty-five degrees of centigrade, which would be between 122° and 149° of Fahrenheit. The heating can be done in a "Bain Marie," that is, by placing the bottle or cask in a vessel filled with water and heating the water, or by hot-air closets or steam-pipes introduced into the casks. The heating should be gradually and carefully accomplished in order to enable any one to test the value of this invention, so important in its aims.

We extract the following, which gives all the author has to say on the mode he has himself followed with wine already in bottle, whether new or old, diseased or sound :

"The bottle being corked, either with the needle or otherwise, by machine or not, and the corks tied on like those of champagne bottles, they are placed in a vessel of water; to handle them easily, they are put into an iron bottle-basket. The water should rise as high as the ring about the mouth of the bottle. I have never yet completely submerged them, but do not think there would be any inconvenience in doing so, provided there should be no partial cooling during the heating up, which might cause the admission of a little water into the bottle. One of the bottles is filled with water, into the lower part of which the bowl of a thermometer is plunged. When this marks the degree of heat desired, 149° of Fahrenheit for instance, the basket is withdrawn. It will not do to put in another immediately, the too warm water might break the bottles. A portion of the heated water is taken out and replaced with cold, to reduce the temperature to a safe point, or, better still, the bottles of the second basket may be prepared by warming, so as to be put in as soon as the first comes out. The expansion of the wine during the heating process tends to force out the cork, but the twine or wire holds it in, and the wine finds a vent between the neck and the cork. During the cooling of the bottles, the volume of the wine having diminished, the corks are hammered in further, the tying is taken off, and the wine is put in the cellar, or the ground floor, or the second story, in the shade, or in the sun. There is no fear that any of these different modes of keeping it will render it diseased, they will have no influence except on its mode of maturing, on its colors, &c. It will always be useful to keep a few bottles of the same kind without heating it, so as to compare them at long intervals with that which has been heated. The bottle may be kept in an upright position, no mould will form, but perhaps the wine will lose a little of its fineness under such condition, if the cork gets dry, and air is allowed too freely to enter."

Mr. Pastuer affirms that he has exposed casks of wine thus heated in the

open air or terrace, with northern experience, from April to December, without any injury resulting.

Wine in casks may be heated by introducing a tin pipe through the bung-hole, which shall descend in coils nearly to the bottom and return in a straight line and through the pipe imparting steam. If, after thus being once heated, there is such an exposure to air, as by drawing off and bottling, as to admit a fresh introduction of "parasites," the disease thus introduced may be easily cured by heating a second time.

Mr. Pastuer claims also to have discovered and proved that wine can be advanced in ripening and improved by "æriation" conducted by a slow and gentle manner. This is a bold assertion, but such confidence is felt in the value of suggestions coming from him that both of his methods, cutting, as they will, a tangle of old theories, will have a fair trial by his countrymen, and that without delay.

Your committee would say, in conclusion, that from what comparison we have been able to make between the better samples of American wines now on exhibition at the "Paris Exposition," with foreign wines of similar character, as well as from the experience of many European wine-tasters, we have formed a higher estimate of our own ability to produce good wines than we had heretofore; and from our investigations in vine culture we are now more confident than ever that America can and will be a great wine-growing country. All that is necessary for us to rival the choicest products of other parts of the world, will ere long come with practice and experience. We have already several excellent varieties of the grape borne on American soil, and suited to it a soil extensive and varied enough for every range of quantity and quality. Who would discover a patch of ground capable of yielding a "Johannesberger," a "Tokay," or a "Margeaux," need only make diligent and careful search, and, somewhere between the lakes and the gulf and the two oceans that circumscribe our vineyard territory, will be sure to find it.

Accompanying this report is a paper from William Griffith, of Pennsylvania, on the propagation of the vine referred to us. This is deemed of such importance as to justify its publication entire without comments on the subject by your committee.

Finally, your committee cannot close this report without acknowledging the many courtesies extended to them by European exhibitors and commissioners in facilitating the investigations incident upon the discharge of their duties.

MARSHALL P. WILDER,
ALEXANDER THOMPSON,
WILLIAM J. FLAGG,
PATRICK BARRY,
Committee.

SUPPLEMENTAL REPORT.

The committee, since making their report on the third branch of the subject given them in charge, have visited the principal vine districts of Switzerland and Germany, and deem some of the observations there made worth being embodied in the supplemental report now submitted.

The vineyards to which attention was more especially given were those of the borders of Lake Geneva, those of Pfalz or Rhenish Bavaria, and of the banks of the Rhine, the Neckar, and the Main.

With regard to the quality of the soil, we have the same remark to make here as was made in the former report, viz, that the vines yielding the best wine were found to be growing on the poorest soil. Geologically, the soil throughout all the above districts is very much the same, viz, basalt and sandstone, both formations usually seen in close proximity, the basalt uppermost and resting on

the other. The only exceptions were a few patches of limestone and slate The basalt soil is esteemed richer than the sandstone, and is often hauled on to the other to enrich it. For instance, the vine-dressers of Durkheim actually manure their thin, poor, gravelly land with tens of thousands of yards of earth, brought from the neighboring town of Deidesheim, and yet the Durkheim wine is quite superior to that of their neighbors. All this was quite different from anything we noticed in France; there, calcareous rocks seem to underlie everywhere, nor could we learn of any wine of high repute in France, that derived its quality from sandstone or basalt. The vine husbandry of the Swiss and Germans is of the first order. Nowhere do you see in their vineyards the straggling appearance so common in those of France, (the effect of frequent layering;) but the lins were always beautifully true and even. Although the intervals or rows werewide enough for the plough to pass, nearly all the cultivation was done by hand, and done most thoroughly, too In France, as in America, they stir the ground two or three times during the season. In the Rhinegau it is done four times; but about Forst Deidesheim and Durkheim they do it as often as every two or three weeks from the beginning to the end of the season. It is in the above neighborhood that basaltic earth is applied as a manure, as is also clay, to make the ground more retentive of manure; and this they do to such an extent that old vine fields are seen which have been raised visibly above the level of the others adjoining them.

NOTE.—Some years since the vineyard of F. T. Buhl, of Deidesheim, produced wine on the natural soil of a very inferior quality, selling at fifty centimes the litre, at a very great expense. The whole vineyard was covered to the depth of three feet by volcanic or basaltic earth brought from a distance of several miles. The experiment at the time was thought to be a very hazardous one, but the enhanced value of the wines after the addition proved that the owner was wiser than his neighbors.

The expenditure of labor in a year on an acre of those fields amounts to about one hundred and forty days' work. In the Pflaz, it is usual to train upon horizontal laths or lines of wire running fifteen inches above the ground, very much as is done in Medoc, only that where wire is used a second line is stretched above the other. If the plan is good in *Medoc* and the Pflaz, it is hard to see why it would not be good everywhere, especially in countries so cold as Germany and the northern part of the United States. Indeed, Mr. Guyot, to whose book we have already referred, argues strongly in favor of everywhere adopting the method of training the fruit-bearing cane horizontal with the ground and very close to it. We ought, however, to note here, that the fields where this mode was more particularly noticed, or connected with good results, were in gravelly deposits of nearly level surface Manure is freely used in Germany, much more so than in France, and is prepared and applied with much care and system. *Cow manure*, largely composted with straw, is the only kind thought fit to manure vines. They sprinkle the heaps almost daily to keep them moist and allow the mass to rot, at least twelve months before being used. It is applied every three years. As to quantity, it is certain that some soil, like the poor and unretentive gravel beds of the Pflaz, should receive more than those of the neighboring slopes, and that the calcareous earths of France need less than the sandstone and the basaltic earths of the Rhine valley.

Guyot, arguing strongly in favor of manure, recommends the French cultivator to put on at intervals of three years a quantity of manure that will be equivalent in weight to that of the fruit he has taken off at vintage, while Mr. Herzmansky, the steward at Johannesberg, who tills some 50 acres of vines, keeps about 40 very large cows in his stables. *But will not manuring hurt the quality of the wine?*

In our former report we say that this is an open question as yet, and so it is in France, and Mr. Guyot treats it as such in arguing upon it. Of course none will doubt that were a vineyard to be treated in this respect, as we treat

the soil of a grapery, very poor wine would be produced, and the only question is will a moderate quantity do harm? This is precisely the question the committee put to Mr. Herzmansky, the intelligent and thoroughly experienced director at Johannesberg, where the best wine in the world is made. His answer was, "No. As we apply it on this soil it does not impair the quality of the wine in any degree; on the contrary, it improves the flavor." Then he led the way to his well-ordered cow stables, and pointing to the compost heaps remarked, "There is the beginning of Johannesberger."

NOTE.—The vineyard of F. T. Buhl, alluded to in a previous note, is fertilized by a compost made of wood-ashes, stable manure, and earth. This is applied in the spring in trenches dug to the depth of about ten inches and again covered with earth; the application is made in this manner to every alternate row of the vineyard. The following year the same process is gone through with in the remaining rows, by the removal of the soil as previously stated, and the treatment of manure as just detailed; this vineyard now produces wine of a very superior quality of a delicious bouquet, rich in saccharine matter, and alcohol, and possessing all those excellences that we prize in a first-class wine, and is now readily selling at twelve francs the titre. To which is this wine most indebted for the extraordinary change in its character, to the volcanic soil, or the manure which is annually buried in the vineyard?

Now Johannesberger is the most delicate of wine, as it is indeed superlative in every respect. By the kind invitation of the Princess Metternich the committee were allowed to taste specimens of the best the castle cellar contained, including some that was 21 years old in the cask, and some from a cask that was *par excellence*, called the "bride of the cellar," and the opinion formed was that the quality of Johannesberger is such that it cannot be described, and can be communicated only to the organs of taste, nor can it be understood or even imagined, except by those who are so highly favored as to have a taste of it. But this marvellous wine is but the crowning product of the famous district of the Rhinegan, or that portion of the valley lying just north of Mayence, a strip less than ten miles in length, whose fruit yields a juice which surpasses all others of the world, combining richness with flavor and delicacy with strength. The soil of the Rhinegan seems to be of a red sandstone mostly, if not wholly. Johannesberg hill reminds one strongly of the soil of some parts of New Jersey and Connecticut, and in the neighborhood of New Haven, in the latter State, the "basalt" is seen resting upon the red stone, just as it does upon the hills that skirt the Rhine. Nearly all the German and Swiss wines, and, indeed, nearly all the grapes grown in Germany and Switzerland, are white, for which the soil and climate of the former country seems peculiarly adapted, while at the same time unsuited for ripening colored grapes to the tint needed in a true red wine. The peculiarity of the better sort of Rhenish wines is "bouquet," and of the inferior sort, acidity compared with them; their French rivals are quite negative, and so are those of Switzerland. A French wine, white or red, must be very poor indeed if it shows any acidity, and must be very fine indeed if it possesses any easily-tasted "bouquet." Altogether, we must award the palm of excellence to the white wines of the Rhine, as we do to the skill and industry of the vine dressers who produce them. In considering the merits of the different soils as geologically distinguished from each other, we seem drawn to the conclusion that, so far as our observation has gone, the red sandstone is the superior one, but we confess ourselves unfit to make any such sweeping generalization, and will only say that the soil in question, for aught we can see, seems as fit as any other to grow a superior wine. The difference between wine made by fermenting the bruised grapes, juice, skin, pulp, and seeds altogether, and called "red wine," and that made by pressing immediately after gathering and fermenting its pressed juice by itself, called "white wine," is not a difference of color alone. For certain bodily temperaments, and for certain conditions of health, possibly, too, for the peculiar constitution of the German people, *white wine* may be the best. And to that of the Rhine country *Leibig* attributes the virtue of being an antidote for calculus and gout. But all this being admitted,

the better reasons seem to favor the production and use of the red wine in preference to the white where it can be done. The testimony we have obtained from the best sources of knowledge on this point amount to this:

Red wine is much less heating, much more tonic, much less exciting to the nerves, much less intoxicating to the brain, and its effects are more enduring than white wine. As we of America are, by reason of our dry climate, as well as from moral causes, more excitable, both from brain and nerve, than the Europeans, and at the same time much oftener in need of tonic diet, and our summer heats are so much more intense than in the wine latitudes of Europe, all the above considerations should have peculiar weight with us. So highly, at least, do the French people appreciate them that they consume now little white wine, and it bears always a lower price in the market than red of equal quality. To the general consumption of this drink intelligent Frenchmen are apt to attribute the fine health of their peasantry, as well as their habitual gaiety and habitual temperance. (The habitual use of *whiskey* has quite another effect.) An American gentleman, for many years residing in France, and for a time a professor in one of the universities, affirms that the greatest longevity is among those people who take red wine three times a day and abstain from both tea and coffee. When Americans consult French physicians, three times in four they are ordered to drink red wine as a habitual beverage, and one of the commonest daily events among Americans residing in Paris is the cure of an obstinate dyspepsia by the same simple remedy, even in the unhealthful air of that city.

The German vineyards have hitherto escaped any very serious ravages from the "vine disease." It is met as often as it appears, and successfully combatted with sulphur. Three applications are made, the first as soon as the berries have grown to be as large as the head of a pin. Early in the day, and before the dew is dried off, the flour is sprinkled on the lower surface of the leaves, where the moisture causes it to attach. The implement used is a tube of tin, perforated with numerous small holes at the lower end, and with a tassel of woolen yarn attached to that end. At Rheims we were shown a large vine, trained to a wall, one-half of which had been treated as above in the spring of the year before and the other half neglected. The latter had, as a consequence, lost all of its fruit, and we visited the place and saw it the following season. It showed yellow and falling leaves in July, and very little fruit, while the other portion was perfectly healthy, and was loaded with a good crop of fruit. This experiment was made by a French gentleman, who had recently returned from a long sojourn in America, and visited that country for the purpose of satisfying himself if the sulphur be really a preventive or not against the vine disease, of which he had heard so many doubts expressed while in America.

MARSHALL P. WILDER,
ALEX. THOMPSON,
W. J. FLAGG,
PATRICK BARRY,
Committee No. 9 United States Commission.

METEOROLOGY.

[Compiled in the Department of Agriculture, from the reports made by the observers for the Smithsonian Institution.]

FEBRUARY, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for February, 1868, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MAINE.				°		°	°	*In.*
Steuben	Washington	J. D. Parker	21	45	12	—13	16.9	3.70
Williamsburg	Piscataquis	Edwin Pitman	20	36	11	—16	10.2	2.00
West Waterville	Kennebec	B. F. Wilbur	9, 20	38	8, 12, 25	—12	14.8	1.85
Gardiner	do	R. H. Gardiner	20	44	12	—12	16.9	1.87
Lisbon	Androscoggin	Asa P. Moore	.....	.....	.....	.....	.....	0.83
Standish	Cumberland	John P. Moulton	21	47	8	—18	14.8	1.73
Norway	Oxford	Howard D. Smith	20	44	12	—22	12.9	1.30
Cornish	York	Silas West	21	42	8	—11	15.3	1.10
Cornishville	do	G. W. Guptill	21	41	23	—10	16.6	3.00
Averages							14.8	1.93
NEW HAMPSHIRE.								
Portsmouth	Rockingham	John Hatch	21	50	8	— 7	21.0	2.78
Stratford	Coos	Branch Brown	20	36	8	—24	9.3	2.00
Shelburne	do	F. Odell	20	46	26	—22	9.4	0.86
North Barnstead	Belknap	C. H. Pitman	24	46	3	— 4	18.3	1.23
Concord	Merrimac	John T. Wheeler	20	45	12	—15	17.9	.....
Averages							15.2	1.72
VERMONT.								
Lunenburg	Essex	H. A. Cutting	20	37	24	—27	8.9	1.45
North Craftsbury	Orleans	Edward P. Wild	20	42	3, 12	—12	14.4	1.60
Randolph	Orange	Charles S. Paine	20	41	8	—31	10.2	0.55
Middlebury	Addison	H. A. Sheldon	20	36	8	—27	11.4	1.15
St. Albans	Franklin	A. H. I. Gilman	20	38	23	—27	8.1	.....
Averages							10.6	1.19
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	21	52	8	— 2	24.8	1.70
Topsfield	Essex	S. A. Merriam	21	48	8	— 7	17.9	1.23
Georgetown	do	S. A. Nelson	21	49	8	— 8	19.5	1.12
Newbury	do	John H. Caldwell	21	49	8	— 5	20.4	0.60
Milton	Norfolk	Rev. A. K. Teele	21	55	8	—13	21.6	1.96

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow
MASS.—Continued.				°		°	°	*In.*
Brookline	Norfolk	Rev. J. B. Perry	21	59	8	—10	23.6	.....
North Billerica	Middlesex	Rev. E. Nason	21	51	8	—22	19.6	.....
West Newton	....do	John H. Bixby	21	55	8	—20	18.8	1.50
New Bedford	Bristol	Samuel Rodman	21	52	8	— 1	23.7	2.32
Worcester	Worcester	Jos. Draper, M. D	21	48	23	— 4	19.2	1.53
Mendon	....do	Jno. G. Metcalf, M. D	21	48	3,23	— 6	17.5	.....
Lunenburg	....do	Geo. A. Cunningham	21	49	23	— 8	18.9	1.45
Amherst	Hampshire	Prof. E. S. Snell	21	45	8	—18	18.2	1.03
Richmond	Berkshire	Wm. Bacon	20	44	23	—10	17.4	4.50
Williams College	....do	Prof. A. Hopkins	19,20	40	8	—19	16.1	1.95
Averages							19.8	1.74
RHODE ISLAND.								
Newport	Newport	Wm. H. Crandall	21	56	23	4	26.1	4.95
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	21	45	23	— 6	18.5	1.80
Columbia	Tolland	Wm. H. Yeomans	21	48	8,23	— 4	21.7	2.20
Middletown	Middlesex	Prof. John Johnston	21	63	8	— 9	20.8	1.53
Colebrook	Litchfield	Charlotte Rockwell	20,21	42	23	—12	16.8	.....
Groton	New London	Rev. E. Dewhurst	21	52	8	— 6	22.1	3.10
Averages							20.0	2.16
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh's	21	55	8	—15	26.0	2.54
South Hartford	Washington	G. M. Ingalsbe	20	44	23	—25	15.5	1.45
Troy	Rensselaer	Jno. W. Heimstreet	20	42	8	—16	17.0	0.86
Germantown	Columbia	Rev. S. W. Roe	19,20	44	12	—14	18.0	1.30
Garrison's	Putnam	Thomas B. Arden	20	47	12	—10	19.0	1.
Throg's Neck	Westchester	Miss E. Morris	21	53	23	— 2	22.3	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	21	50	23	1	23.0	2.31
Columbia College	....do	Prof. Chas. A. Joy	21	51	23	6	25.8	1.02
Flatbush	King's	Eli T. Mack	21	51	8	0	26.3	0.57
Newburgh	Orange	James H. Gardiner	19,20	48	8	—18	19.5	.....
Minaville	Montgomery	J. W. Bussing	20	36	23	—16	10.1	0.97
Gouverneur	St. Lawrence	C. H. Russell	20	43	3	—28	12.4	1.54
North Hammond	....do	C. A. Wooster	20	44	11	—21	14.3	1.39
South Trenton	Oneida	Storrs Barrows	20	48	3,23	—14	12.3	2.60
Cazenovia	Madison	Prof. Wm. Soule	20	42	23	—17	15.7	3.18
Oneida	....do	S. Spooner, M. D	20	48	3	—14	18.6	2.50
Houseville	Lewis	Walter D. Yale	20	43	3	—20	13.4	1.61
Depauville	Jefferson	Henry Haas	20	40	3	—18	15.8	3.51
Theresa	....do	S. Gregory	9	34	11	—26	.....	1.95
Oswego	Oswego	Wm. S. Malcolm	20	44	11	— 8	18.8	2.25
Palermo	....do	E. B. Bartlett	20	39	11	—19	14.9	2.90
Nichols	Tioga	Robert Howell	20	50	8	—20	18.0	.....
Newark Valley	....do	Rev. Sam'l Johnson	20	46	7	—32	.....	.....
Geneva	Ontario	Rev. Dr. W. D. Wilson	20	42	23	— 5	19.8	1.69
Rochester	Monroe	Henry W. Mathews	20	45	11	— 2	20.7	1.59
Do	....do	W. L. M. Fiske, M. D	20	45	11,23	— 2	20.4	1.59
Little Geneses	Allegany	Daniel Edwards	20	52	8	—19	17.4	1.83
Buffalo	Erie	Wm. Ives	20	41	3,11	— 1	20.9	2.83
Averages							18.3	1.87

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
NEW JERSEY.				°		°	°	*In.*
Paterson	Passaic	Wm. Brooks	21	51	8	— 6	21.4	1.38
Newark	Essex	W. A. Whitehead	21	51	4	— 4	21.9	1.62
New Brunswick	Middlesex	Geo. H. Cook	21	46	8	—10	20.4	1.54
Trenton	Mercer	E. R. Cook	21	50	8	— 4	26.8	2.20
Burlington	Burlington	John C. Deacon	20	52	8	— 5	26.5	2.10
Moorestown	....do	Thos. J. Beans	20	53	8	— 5	23.0	2.44
Mount Holly	....do	M. J. Rhees, M. D	20	52	8	— 2	24.8	.....
Dover	Morris	Howard Shriver	21	49	12	— 7	20.7	1.45
Haddonfield	Camden	Samuel Wood	20	50	8	— 3	24.1	2.25
Newfield	Gloucester	E. D. Couch	20, 21	53	8	— 7	26.1	.....
Greenwich	Cumberland	R. C. Sheppard	21	50	8	3	26.6	1.86
Vineland	....do	John Ingram, M. D	21	52	8	— 6	24.3	4.06
Averages							23.9	2.09
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	19	49	8	—20	18.0	1.28
Fallsington	Bucks	Eben'r Hance	20	55	8	— 6	23.7	2.50
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	20	51	23	4	26.6	2.59
Germantown	... do	Thomas Meehan	19	46	8	— 2	23.0	2.00
Horsham	Montgomery	Miss Anna Spencer	20	53	8	— 4	23.6	1.80
Plymouth Meeting	....do	Marcus H. Corson	20	50	8	— 7	22.8	1.46
Dyberry	Wayne	Theodore Day	20	47	8	—27	13.6	1.60
Whitehall	Lehigh	Edward Kohler	21	50	4	— 7	21.5	1.55
Parkesville	Chester	F. Darlington, M. D	20	48	8	—10	21.6	2.11
Reading	Berks	J. Heyl Raser	21	53	8	— 1	24.5	.....
Ephrata	Lancaster	W. H. Spera	20, 21	52	8	— 4	24.9	2.10
Silver Spring	....do	H. G. Bruckhart	20	48	8	— 8	23.8	.....
Mount Joy	....do	J. R. Hoffer	20	53	8	— 2	2.56	1.95
Harrisburg	Dauphin	John Heisely, M. D	21	49	4	2	23.5	1.76
Ickesburg	Perry	Wm. E. Baker	20, 21	53	8	—15	21.1	1.77
Lewisburg	Union	Prof. C. S. James	19	48	8	—18	18.0	1.57
East Tioga	Tioga	E. T. Bentley	20	55	8	—22	20.0	1.02
Grampian Hills	Clearfield	Elisha Fenton	20	50	8	—16	16.6	3.80
Johnstown	Cambria	David Peelor	19, 20, 21	46	1	—14	21.8	4.55
Franklin	Venango	Rev. M. A. Tolman	20	50	3	—24	18.6	.....
Connellsville	Fayette	John Taylor	20	56	3	—12	24.4	.....
Beaver	Beaver	Rev. R. T. Taylor	20	50	3	0	27.4	2.75
New Castle	Lawrence	E. M. McConnell	19, 20	50	3	—10	25.2	.....
Canonsburg	Washington	Rev. W. Smith, D. D	20	57	3	— 7	26.5	1.03
Averages							22.4	2.05
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	20	52	8	— 1	24.4	2.87
Catonsville	Baltimore	George S. Grape	21	50	23	6	24.8	.....
Annapolis	Anne Arundel	Wm. R. Goodman	19	56	8	— 1	31.3	2 31
St. Inigoes	St. Mary's	Rev. J. Stephenson	20	60	26	13	31.0	2.60
Emmittsburg	Frederick	Eli Smith	20	52	8	— 8	24.6	.....
Mt. St. Mary's Coll	....do	Prof. C. H. Jourdan	19, 20	49	8	2	23.9	1.61
Averages							26.7	2.35
VIRGINIA.								
Cape Charles L. H.	orthampton	Mrs. J. G. Potts	19	55	12	22	40.1	.....
Surry C. H.	Surry	B. W. Jones	20	69	12	11	36.5	.....

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
VIRGINIA—Con.				°		°	°	*In.*
Comorn	King George	E. Tayloe	20	58	1, 8	3	.....	0.29
Lynchburg	Bedford	C. I. Merriwether	19	57	2, 7, 8	20	36.0	.....
Snowville	Pulaski	J. W. Stalmaker	21	58	1	— 8	30.0	7.75
Wytheville	Wythe	James A. Brown	20	56	1	— 8	31.2	1.75
Averages							34.8	3.26
WEST VIRGINIA.								
Romney	Hampton	W. H. McDowell	19	62	8	6	31.3	.....
Grafton	Taylor	W. H. Sharp, M. D	19, 20	60	1	— 2	32.8	4.63
Cabell C. H.	Cabell	C. L. Roffe	24	60	1	9	36.7	0.60
Burning Springs	Wirt	Rob't H. Bliven	16, 19	73	1	— 2	32.9	.....
Averages							33.4	2.61
NORTH CAROLINA.								
Goldsboro'	Wayne	E. W. Adams, A. M.	20	69	8	20	40.6	2.25
Oxford	Granville	Wm. R. Hicks, M. D.	20	60	8	17	35.7	3.20
Raleigh	Wake	Rev. F. P. Brewer	20	66	8	15	35.3	3.00
Albemarle	Stanley	F. J. Kron	20	69	8	12	37.1	3.95
Statesville	Iredell	Thos. A. Allison	17	52	13	14	32.3	3.75
Asheville	Buncombe	E. I. Aston	20	62	1	4	36.5	.....
Kenansville	Duplin	Prof. N. B. Webster	21	65	.....	.....	.....	.....
Averages							36.3	3.23
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	17	65	7	25	34.6	3.34
Gowdysville	Union	Charles Petty	20	64	1	19	38.9	.....
Averages							36.8	3.34
GEORGIA.								
Atlanta	Fulton	F. Deckner & Son	22	68	7	17	40.8	3.55
Macon	Bibb	Jno. A. Rockwell	19	68	1	26	47.4	6.89
Averages							44.1	5.22
ALABAMA.								
Moulton	Lawrence	Thos. M. Peters, A. M.	9, 21	62	7	22	44.7	2.26
Carlowville	Dallas	H. L. Alison, M. D.	9	72	1	30	49.2	6.79
Fish River	Baldwin	W. J. Van Kirk	19, 23	72	1	27	.....	4.60
Opelika	Lee	J. H. Shields	17	68	7	25	47.6	.....
Greene Springs	Hale	J. W. A. Wright	22	72	1	22	48.4	3.03
Havana	do.	Sam'l K. Jennings	17, 22	70	1	22	47.4	2.79
Averages							47.5	3.89
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	10, 21	78	7	36	54.0	2.25
Port Orange	Volusia	J. M. Hawks	10	84	29	40	56.8	.....
Lake City	Columbia	Galen M. Fisher	9	73	1, 7, 29	35	53.7	.....
Do	....do	E. R. Ives	21, 25	78	1	30	57.5	8.25
Averages							55.5	5.25
TEXAS.								
Waco	McLellan	Edw. Merrill, M. D.	19	76	11, 12	22	47.6	2.20
Austin	Travis	J. Van Nostrand	20	83	12	26	54.6	3.48
Houston	Harris	Miss E. Baxter	19, 25	82	12	31	55.6	.....
Averages							52.6	2.84

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MISSISSIPPI.				°		°	°	*In.*
Grenada	Yalabusha	Albert Moore	22	76	12	20	49.9	.....
Natchez	Adams	Wm. McCary	9, 24	74	1, 12	25	45.7	3.38
Averages							47.8	3.38
ARKANSAS.								
Helena	Phillips	O. F. Russell	22	76	12	15	45.6	.....
TENNESSEE.								
Tusculum College	Green	S. S. and Rev. W. S. Doak.	20	61	1	3	36.0	.....
Lookout Mountain	Hamilton	Rev. C.F.P. Bancroft	21, 22	63	7	14	41.2	.....
Clarksville	Montgomery	Prof. W. M. Stewart	23	67	1, 2, 10	19	39.9	1.31
Memphis	Shelby	Edw. Goldsmith	23	72	11	18	43.0	1.28
Elizabethton	Carter	Charles H. Lewis	20	60	1	9	36.8	.....
Averages							39.4	1.30
KENTUCKY.								
Chilesburg	Fayette	Sam'l D. Martin, M.D.	19	59	7	4	33.5	2.05
Louisville	Jefferson	Mrs. L. Young	19	57	7	6	35.0	1.60
Danville	Boyle	O. Beatty	19	71	7	5	39.3	1.59
Lexington	Fayette	S. R. Williams	20	60	7	8	34.2	1.96
Averages							35.5	1.80
OHIO.								
New Lisbon	Columbiana	J. F. Benner	20	50	3	—14	23.1	1.55
Steubenville	Jefferson	Joseph B. Doyle	19, 20	46	3	0	28.0	.....
Painesville	Lake	E. J. Ferris	20	48	3	3	22.5	1.56
Milnersville	Guernsey	Rev. D. Thompson	20	52	3	— 8	23.6	1.12
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	20	48	3	— 3	23.2	1.47
Do	....do	T. A. Smurr, M. D.	20	56	3	0	25.0	.....
Wooster	Wayne	Martin Winger	20	52	3	—12	25.2	.....
Gallipolis	Gallia	Alex. P. Rodgers	20	55	1	7	33.1	1.18
Kelley's Island	Erie	Geo. C. Huntington	20	48	3	— 5	23.9	0.83
Sandusky	....do	Thomas Neill	20	50	3	—12	23.8	0.88
Norwalk	Huron	Rev. A. Newton	20	52	3	—14	24.4	0.84
Greenwich Station	....do	Mrs. M. M. Marsh	20	51	3	—13	25.1	0.55
North Fairfield	....do	O. Burras	20	51	3	—13	24.1	0.94
Westerville	Franklin	Prof. Jno. Haywood	19	53	3	—10	24.7	0.95
Marion	Marion	H. A. True, M. D.	19, 20	47	3	— 9	23.6	1.00
Williamsport	Pickaway	John R. Wilkinson	24	69	3	— 2	31.7	1.82
Toledo	Lucas	J. B. Trembly, M. D.	20	46	3	—10	23.1	1.06
Bowling Green	Wood	John Clarke	20	52	3	—18	24.9	1.99
Kenton	Hardin	C. H. Smith, M. D.	5, 15	49	3	2	31.2	1.72
Urbana University	Champaign	M. G. Williams	19	49	3	— 4	25.1	1.03
Hillsboro'	Highland	J. McD. Mathews	24	54	3	2	28.3	0.68
Bethel	Clermont	Geo. W. Crane	24	54	1	— 1	27.4	0.70
Cincinnati	Hamilton	Geo. W. Harper	20	51	7	6	31.0	0.57
Do	....do	R. C. Phillips	21	52	7	14	35.3	0.88
College Hill	....do	John W. Hammitt	21, 24	48	7	0	29.8	0.25
Averages							26.4	1.07

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MICHIGAN.				°		°	°	*In.*
Monroe City	Monroe	Miss F. Whelpley	15	47	3	—21	22.5	0.90
Alpena	Alpena	J. W. Paxton	20	39	10	— 2	17.4	2.78
State Agricult'l Col	Ingham	Prof. R. C. Kedzie	20	44	3	—19	18.7	1.28
Litchfield	Hillsdale	R. Bullard	20	46	3	—30	18.7	1.53
Grand Rapids	Kent	E. S. Holmes, D.D.S.	20	48	3, 10	— 6	21.3	1.59
Northport	Leelanaw	Rev. Geo. N. Smith	20	44	13	— 4	18.0	3.45
Otsego	Allegan	Milton Chase, M.D.	18	55	3, 10	—10	26.0	1.50
Holland	Ottawa	L. H. Streng	16, 20	47	7	— 2	23.5	1.44
Copper Falls	Keweenaw	Dr. S. H. Whittlesey	19	40	12	—16	8.1	4.45
Ontonagon	Ontonagon	Edwin Ellis, M. D.	18, 19	40	10	—22	11.9	.....
Averages							18.6	2.10
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M. D.	24	60	1	0	30.3	1.19
Vevay	Switzerland	Chas. G. Boerner	19	60	7	5	33.7	0.90
Muncie	Delaware	G. W. H. Kemper, M.D	24	55	1	— 6	26.5	1.55
Columbia City	Whitley	Dr. F. and Miss L. McCoy.	21	50	3	—14	21.9	.....
Indianapolis	Marion	W. J. Elstun, M. D.	24	56	11	1	26.9	1.13
Merom	Sullivan	Thomas Holmes	24	59	10	1	30.8	1.00
New Harmony	Posey	John Chappellsmith	24	60	10	7	36.2	0.82
Carthage	Rush	Charles M. Hobbs	24	54	3	— 6	25.0	0.50
Averages							28.9	1.01
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr.	20	56	10	— 9	27.8	0.93
Near Chicago	....do	Samuel Brookes	24	54	7	—12	24.3	.....
Golconda	Pope	Wm. V. Eldredge	26	82	10	10	40.1	0.60
Aurora	Kane	A. & E. D. Spaulding	20	51	10	—27	21.3	1.05
Sandwich	De Kalb	N. E. Ballou, M. D	20	48	10	—25	19.7	0.85
Ottawa	La Salle	Mrs. E. H. Merwin	20	55	3	—12	22.0	1.40
Winnebago	Winnebago	J. W. & Miss Tolman	20	47	10	—26	18.3	0.77
Hennepin	Putnam	Smiley Sheppard	20	56	10	—14	25.0	.....
Magnolia	....do	Henry K. Smith	19	62	3	—16	23.3	0.80
Rochelle	Ogle	Daniel Carey	20	50	10	—32	19.0	0.55
Wyanet	Bureau	E. S. & Miss Phelps	19	63	10	—16	24.1	0.52
Tiskilwa	....do	Verry Aldrich	20	49	10	—13	24.4	.....
Elmira	Stark	O. A. Blanchard	20	56	10	— 8	24.9	0.83
Peoria	Peoria	Frederick Brendel	20	55	1	— 6	26.8	0.75
Springfield	Sangamon	G. M. Brinkerhoff	20	63	10	— 2	26.9	.....
Waterloo	Monroe	H. Künster	24	68	10	5	35.7	.....
Dubois	Washington	Wm. C. Spencer	24	56	11	0	26.1	0.50
Galesburg	Knox	Prof. W. Livingston	20	61	10	— 7	24.5	0.40
Mount Sterling	Brown	Rev. A. Duncan	20	58	10	— 6	29.0	.....
Andalusia	Rock Island	E. H. Bowman, M. D	16, 19	52	10	—20	26.4	.....
Augusta	Hancock	S. B. Mead, M. D.	16, 20	56	10	— 6	28.5	0.80
Ridge Farm	Vermillion	Dr. B. C. Williams	24	60	10	— 4	29.3	.....
Marengo	McHenry	O. P. Rogers	20	48	10	—27	20.4	0.95
Wapello	De Witt	T. Louis Groff	24	58	3	—15	27.4	1.00
Averages							25.6	0.79
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	16, 20	47	10	—17	19.3	1.34

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
WISCONSIN—Con.				°		°	°	*In.*
Plymouth	Sheboygan	G. Moeller	16, 18, 20	43	10	—27	17.0	2.00
Milwaukee	Milwaukee	I. A. Lapham, LL.D	19	56	10	—14	21.3	0.92
Geneva	Walworth	Wm. H. Whiting	20	48	10	—12	20.2	0.68
Waupacca	Waupacca	H. C. Mead	18, 20	48	10	—27	17.4	.....
Embarrass	....do	E. Everett Breed	19	47	10	—23	15.1	3.40
Edgerton	Rock	Henry J. Shintz	20	56	10	—32	18.6	0.80
Baraboo	Sauk	M. C. Waite	20	52	10	—30	16.0	4.13
New Lisbon	Juneau	J. L. Dungan	16	55	10	—40	17.4	.....
Rocky Run	Columbia	W. W. Curtis	20	49	10	—40	16.9	3.05
Bayfield	La Pointe	Andrew Tate	18	50	9, 12	—24	11.1	.....
Averages							17.3	2.04
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	18	45	10	—26	12.8	1.51
Minneapolis	Hennepin	Wm. Cheney	18	46	10	—26	12.7	1.75
New Ulm	Brown	Charles Roos	16	42	10	—28	13.9	0.79
Averages							13.1	1.35
IOWA.								
Clinton	Clinton	Dr. P. J. Farnsworth	20	62	10	—25	23.5	1.00
Dubuque	Dubuque	Asa Horr, M. D	18, 20	51	10	—23	20.6	1.03
Monticello	Jones	M. M. Moulton	20	57	6, 9	—10	23.0	0.55
Burlington	Des Moines	Mrs. James P. Love	20	63	10	— 5	29.1	0.45
Fort Madison	Lee	Daniel McCready	20	57	10	—11	27.6	0.40
Guttenberg	Clayton	Jas. P. Dickerson	18	53	10	—37	17.2	0.85
Ceres	....do	Jno. M. Hagensick	16, 20	48	10	—20	20.0	.....
Mount Vernon	Linn	Prof. A. Collins	18	53	10	—20	21.2	.....
Iowa City	Johnson	Prof. Theo. S. Parvin	18, 20	55	10	—26	25.3	1.51
Independence	Buchanan	Geo. Warne, M. D	18	52	10	—31	19.1	0.50
Near Independence	....do	Mrs. D. B. Wheaton	18	55	10	—36	15.1	0.95
Waterloo	Black Hawk	T. Steed	18	52	10	—28	17.0	.....
Marble Rock	Floyd	H. Wadey	18, 21	45	10	—25	18.6	0.83
Algona	Kossuth	Ph. Dorweiler	18	44	9	—20	16.7	1.11
Do	....do	James H. Warren	18	42	9	—20	15.3	.....
Dakotah	Humboldt	Wm. O. Atkinson	18	51	9	—20	18.3	.....
Boonesboro'	Boone	E. Babcock	18	55	10	—18	20.7	0.68
Fontanelle	Adair	A. F. Bryant	16, 18	58	10	—16	23.2	0.78
Logan	Harrison	Jacob F. Stern	16	58	9	—17	25.4	0.61
Whitesboro'	....do	David R. Witter	18	60	9	—17	22.5	0.65
Fort Dodge	Webster	C. N. Jorgensen	18	53	9	—17	19.9	0.77
Muscatine	Muscatine	J. P. Walton	20	53	10	—32	21.1	0.50
Rolfe	Pocahontas	Oscar I. Strong	18, 20	48	9	—24	16.5	1.30
Averages							20.7	0.86
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	24	65	10	5	34.9	0.41
Allenton	....do	A. Fendler	24	65	11	— 5	33.2	0.82
Hermitage	Hickory	Miss Belle Moore	22	69	11	— 7	33.5	0.15
Rolla	Phelps	Homer Ruggles	23	69	11	— 3	34.7	0.29
Harrisonville	Cass	John Christian	16, 21	66	9, 10	0	33.2	0.24
Jefferson City	Cole	Nicolas De Wyl	23	65	10, 11	4	33.0	.....
Averages							33.8	0.38

Table showing the range of the thermometer, &c., for February—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
KANSAS.				°		°	°	*In.*
Leavenworth	Leavenworth	J. Stayman, M. D.	16, 23	68	10	— 8	30.6	0.38
Olathe	Johnson	Wm. Beckwith	16	69	10	— 4	32.0	1.00
Atchison	Atchison	Dr. H. B. & Miss Horn	16, 18, 23	66	10	—10	29.6	0.25
Holton	Jackson	Dr. James Watters	16	68	9	—10	30.7	0.28
State Agricult'l Coll.	Riley	Prof. B. F. Mudge	17	69	9, 10	— 6	27.7	0.18
Council Grove	Morris	A. Woodworth, M.D.	22	75	9	— 4	33.4	.....
Baxter Springs	Cherokee	Ingraham & Hyland	22	78	11	1	36.9	0.02
Lawrence University	Douglas	Prof. F. H. Snow	23	72	9	— 3	35.7	0.19
Averages							32.1	0.33
NEBRASKA.								
Elkhorn	Washington	John S. Bowen	16	60	9	—13	24.5	0.35
De Soto	....do	Charles Seltz	16	57	9	—17	23.3	0.79
Glendale	Cass	Dr. A. L. & Miss Child	16	66	9	—22	24.0	1.15
Dakota	Dakota	H. H. Brown	16, 18	56	9	—14	23.2	0.50
Omaha Agency	(Reserve)	Rev. Wm. Hamilton	21	62	9	—14	25.3	0.60
Averages							24.1	0.68

NOTES OF THE WEATHER FOR FEBRUARY, 1868.

[Compiled in the Department of Agriculture from the reports of observers for the Smithsonian Institution.]

Steuben, Maine.—The coldest February on my record by 1°.4, and colder than usual by 6° to 14°.

Waterville, Maine.—Month remarkable for cloudy mornings and fair evenings; average temperature nearly 7°.5 below the eleven preceding Februarys.

Gardiner, Maine.—Mean temperature for 32 years, 20°.46; this February 16°.33. This month thermometer below 0 16 times; in 1856, 17 times.

Lisbon, Maine.—Ground under the snow frozen 31½ inches deep.

Norway, Maine.—An uncommonly clear, steady cold month; snow 36 inches on a level; water very scarce, some mills stopped, and wells failed that never failed before.

Cornish, Maine.—February average for 38 years, 18°.33; this month, 16°.61.

Stratford, New Hampshire.—Coldest February in 12 years. Thermometer above 32° but once since December 28, 1867—64 days.

North Barnstead, New Hampshire.—Water very low and many wells dry.

Shelburne, New Hampshire.—Streams low and water scarce; the ice was 18 inches thick on the Androscoggin on the 13th.

Concord, New Hampshire.—Ground in our streets frozen five feet deep.

Lunenburg, Vermont.—Water for all purposes scarcer than for many years.

Craftsbury, Vermont.—A cold, dry month; many wells have failed.

Middlebury, Vermont.—Mean temperature of February lower than any month since January, 1857; on the 8th lower than since February, 1861; scarcity of water severely felt.

East Bethel, Vermont.—Mean temperature 3° colder than January; ice on mill ponds six to seven feet thick; wells and springs getting low.

Kingston, Massachusetts.—Remarkably cold month; the oldest inhabitant remembers no winter so severe.

Georgetown, Massachusetts.—Mill streams low; many mills stopped after the 10th; cross-roads badly drifted, and many small streams frozen solid.

Milton, Massachusetts.—We have had 40 snow storms this winter.

Lunenburg, Massachusetts.—Coldest February and coldest winter since 1849.

Pomfret, Connecticut.—Coldest February in 16 years by 7°.2 below average; and December, January, and February last past colder by 6°.4 than the average of the same months for 16 years past.

Moriches, New York.—The winter thus far more steadily and uniformly cold than I can remember. February mean temperature nearly 13° below that of 1867, 8⅔° below that of 1866, and 6° below that of 1865.

South Hartford, New York.—The winter the severest within 50 years, and the month unequalled for severity by any February in my memory. Mean temperature 15°.45, being 11° below the average of the last seven years. Snow about two feet on a level, but badly drifted; ground frozen three feet in open fields; no rain fall and no sign of thaw this year, and wells and springs failing every day. Some sudden changes during the month; 28° in 10 hours on the third; 30° in seven hours on the seventh, and 42° in 17 hours on the eighth.

Troy, New York.—Month one of the coldest known here. Mean temperature 8° below the average of February of last 11 years. Ice on the Hudson an average of 32 inches.

Garrisons, New York.—Month unusually cold, with very frequent snows; snow now 18 inches in woods.

Newburgh, New York.—Ice in the channel of the river 20 to 24 inches thick.

Minaville, New York.—The month (and winter thus far) the severest remembered here, and the drought the greatest.

Depauville, New York.—The coldest, stormiest February known here in 36 years.

Houseville, New York.—Stormy, boisterous month; snow three feet deep; no thaw, and wells and streams very low.

Palermo, New York.—Coldest February in 15 years; thawed on the south side of the house only twice since Christmas.

Nichols, New York.—Coldest, severest February in many years; snow about three feet; ice on Susquehanna in some places about five feet; many roads impassable, many wells dry.

Geneva, New York.—Winter unusually cold and severe. February colder by 5°.64 than the February average of last 15 years. Lake frozen further from shore than known since this town was settled by the whites.

Rochester, New York.—Coldest February in many years. On 28th a severe snow storm; more fell than at any time this winter.

Little Genesee, New York.—Springs were never so low this century; but four wells in Olean village have water for 2,000 inhabitants.

Buffalo, New York.—February colder by 6° than in 10 years. Earth in our streets frozen four feet deep; water pipes bursting; good sleighing; snow seven inches; ice in the lake thicker than ever observed before.

Newark, New Jersey.—Such a February not experienced in 24 years; its mean temperature 2°.42 below that of the coldest, and 8°.98 below the average of the 24.

Trenton, New Jersey.—Month more continuously cold than for many years, yet dry, with steady sleighing.

Dover, New Jersey.—Sleighing and very severe cold since December 1, 1867.

Newfield, New Jersey.—Mean temperature about 9° below the average of the month for five years; and seldom more than one fair day at a time.

Greenwich, New Jersey.—Mean temperature 3° higher than January; snow on ground throughout; more skating than for 12 years past.

Fallsington, Pennsylvania.—Month 7° colder than the average of 10 past Februarys.

Philadelphia, Pennsylvania.—Coldest February in 17 years, and the coldest winter, except 1865–'6, in same period.

Horsham, Pennsylvania.—Month stormy almost throughout, with much snow and cold.

Dyberry, Pennsylvania.—Snow-fall, 16 inches for February and 65.8 inches for the season; ice between two and three feet thick. For five months ponds and swamps low and dry, and mills idle. The longest drought ever known here.

Reading, Pennsylvania.—Uniformly cold and healthy; no thaws since December, and good sleighing throughout.

Ickesburg, Pennsylvania.—This winter remarkable for continued cold, unusual amount of good sleighing, and moderate winds. Grain well protected by snow from 4 to 15 inches deep.

Lewisburg, Pennsylvania.—Coldest February on my record since 1856.

Tioga, Pennsylvania.—Month steadily cold; sleighing good; ground frozen 12 inches; ice 16 inches.

Grampian Hills, Pa.—This month colder than the average of February for three years past, and 13°.67 than February, 1867.

Connellsville, Pa.—Robin redbreast seen on 26th.

Woodlawn, Md.—Good sleighing the entire month, except two days; average temperature 14° below that of February, 1867; snow fell on eight days, about 15 inches, being double that of February, 1867.

Surry Court House, Va.—Month cold, cloudy, and wet.

Comorn, Va.—Month unusually inclement and unfavorable for farm work. Broadcast wheat has suffered much from freezing and thawing. Sixteen snows enumerated this winter; all light.

Wytheville, Va.—Woodchuck first seen on 18th, and bluebirds on 22d. Frequent rumbling thunder heard to northeast at 9 to 10 a. m. on 24th, with thermometer at 29°.

Burning Spring, West Va.—Little Kenawha open since 9th. Snow at no time an inch and a half deep; greatest depth of frozen ground 18 inches. Lowest temperature of springs 38°; petroleum and water from a depth of 861 feet, 58°.

Albemarle, N. C.—Crocus and hyacinth in bloom on 18th; wild geese on their way north on 29th; a bright white one seen in a flock.

Kenansville, N. C.—Ground not frozen more than two inches; glow-worms seen occasionally all winter. No thunder or lightning this year.

Aiken, S. C.—Thunder on 10th, and with lightning on 21st.

Gowdysville, S C.—Frogs heard on 15th; farmers sowing oats 20th; alder in bloom 27th; distant thunder in northwest at 3 to 8 p. m. on 20th.

Atlanta, Ga.—Robins appear 15th; blackberry bushes leaf out 28th.

Moulton, Ala.—Chickasaw plums begin to bloom; prospect good for fruit.

Havana, Ala.—Distant thunder between 11 and 12 a. m. on 20th, and thunder, with some rain, on 26th. Frost on 1st, 7th, 12th, 28th, and 29th. Ground frozen 3½ inches on 1st.

Lake City, Fla.—Ice an inch thick on 1st; mocking birds appear on 3d, fireflies on 5th, robins on 8th. Plums and peaches blossom on 10th. Frost on 29th, killing beans and nipping corn and potatoes.

Georgetown, Texas.—Snow nine inches deep on a level on 3d; remained two days; was the deepest snow ever known here in 30 years. Benefited wheat, and did no damage to stock.

Waco, Texas.—Light frosts on 27th and 28th; did no injury. The grasshoppers are hatching out in myriads. The ground is alive with them, and they are commencing their destructive work, so that famine is really feared.

Salado, Texas—Young grasshoppers in great numbers began to hatch about the 20th, and they are eating the vegetables in the gardens as fast as they come up. It is thought they will ruin the wheat in this section; probably the corn also as soon as it comes up. Spring weather since the 12th; martins appeared on the 26th.

Grenada, Miss.—Month unusually cold; vegetation backward; promise of a good fruit crop.

Memphis, Tenn.—No frost in ground, which is rather dry; navigation open. Peaches, quinces, and roses budding and leafing.

Chilesburg, Ky.—Snowed on nine days, but only once enough to measure.

Steubenville, Ohio.—River closed on 1st and opened on 12th. Frosts on 2d, 3d, 4th, 5th, 8th, 12th, 13th, 14th, and 21st.

Painesville, Ohio.—Thunder-storm at 9 p. m. on the 24th, but little rain fell.

Cleveland, Ohio.—Thunder-storm at 7.30 p. m. on 24th.

Wooster, Ohio.—Lightning in southwest at 7 p. m. on 24th. It snowed 11 days, rained on four days, and snowed and rained on two days, in February.

Norwalk, Ohio.—Coldest February since 1861; temperature more uniform than usual; snow nearly gone; ground frozen 24 inches.

Greenwich Station, Ohio.—Two bluebirds appeared on 4th, with thermometer 16°; 24 hours before, 13° below zero.

Williamsport, Ohio.—Thunder-storm from the west at 9 a. m. on the 24th.

Toledo, Ohio.—Colder than any February we have record of, and 7°.5 lower than the February average of nine years past.

Bowling Green, Ohio.—Driest winter in 30 years; springs and wells very low.

Urbana, Ohio.—The mean temperature more than 5° below the average of the month for several years, and 9°.5 below February of 1867.

Lansing, Mich.—Coldest February ever known here; by self-registering thermometer it was 37° below zero on the 2d.

Litchfield, Mich.—Coldest February in 19 years; good sleighing since January 3d.

Northport, Mich.—Probably the coldest February, as to steady cold, in 19 years. Swamps and streams very low.

Copper Falls, Mich.—Winter, thus far, unusually stormy and cold; snowfall 18 feet 5½ inches; now about six feet in the woods.

Aurora, Ind.—First robins seen on 15th.

Merom, Ind.—Coldest day of the month, 10th. Bluebirds seen on 12th; song sparrows on 17th.

Golconda, Ill.—Martins seen on 22d; weather open and pleasant; farmers have ploughed considerably for oats.

Aurora, Ill.—Month pleasant; little snow, but sleighing good. Fox river never known to be so low by the oldest inhabitants.

Sandwich, Ill.—On 25th, at 5 p. m., a gale, with cyclone (circling) movements; but little damage. At midnight following, frightful peals of thunder and fierce, livid zigzag lightning, but rain not as severe as at the southeast, distant from here.

Ottawa, Ill.—Thaw on the 12th; bluebirds singing on the 13th. The winter mild; no heavy snows, but few very hard frosts, and no heavy rains.

Hennepin, Ill.—Present prospects for fruit crops very good.

Magnolia, Ill.—Streams very low since last August; filling up on 15th and 16th; first bluebirds on 19th; prairie ground frozen two feet ten inches on 20th; wild geese flying on 25th.

Galesburg, Ill.—Month fine and most part warm, but great scarcity of water.

Wapello, Ill.—Wells still low from last season's drought.

Plymouth, Wis.—This February is 4° below the mean temperature of those of last four years.

Milwaukee, Wis.—Less than an average amount of rain for the last nine months.

Waupacca, Wis.—The 10th was the coldest day since New Year's 1864. On 23d, at midnight, in the midst of a northeast snow-storm, we had sharp lightning and distinct rolling thunder.

Embarrass, Wis.—Hardest snow-storm in eight years on 23d—25th.

Baraboo, Wis.—On 24th, at one a. m., high east wind with flash lightning and heavy thunder in the west for one hour.

Rocky Run, Wis.—Snow on 23d, day and evening, with gale from east and light thunder in the night. On the 24th, a. m, hail and large flakes of snow. On 10th lowest temperature (40°) for at least 10 years.

St. Paul, Minn.—Hail-storm during 23d, in which a shower of dust was deposited.

Minneapolis, Minn.—Ice in the Mississippi 27 inches thick.

Clinton, Iowa—Coldest morning in four years on 10th, varying from 25° to 34° below zero; bluebirds and crows seen on 20th; lightning in north at 9 p. m., and sharp lightning and heavy thunder in northwest at 11 p. m., with sleet on 23d; month steadily cold; one very cold day and two warm days; only a few days of sleighing.

Dubuque, Iowa.—Thunder-storm, with hail from south to north, at 9 a. m. to 11 p. m. on 23d.

Monticello, Iowa.—Farmers sowing wheat on 20th; thunder-storm from west to east, with abundance of thunder and lightning, and but little rain on same day.

Fort Madison, Wis.—Wild geese going north on 19th, 20th and 29th; farmers sowing spring wheat on 20th and 21st.

Guttenberg, Iowa.—Thunder-storm with hail from 3 to 9 p. m., on 23d.

Independence, Iowa, (five miles northeast of.)—Snow all gone on 17th; distant thunder and lightning, with rain, hail, and snow, on 23d.

Waterloo, Iowa.—No rain of any amount since July, 1867; no snow in

December; neither fog nor thaw in January. Thunder and lightning southeast, east, and northeast, at 7 p. m. on 23d, but no rain here.

Algona, Iowa.—A pleasant month; since the 10th, spring-like; snow nearly gone.

Boonsboro, Iowa.—In over four months less than two inches of water (either rain or melted snow;) small streams dry; wells failing; cisterns generally exhausted.

Fontanelle, Iowa.—Raccoons chattering on nights of 17th to 20th; bluebirds and pewees seen on 24th and 25th.

Logan, Iowa.—From 11th to 25th weather mild, ground dry, and farmers sowed wheat for the first time in February in ten years.

Fort Dodge, Iowa.—Farmers sowed spring wheat from 14th to 20th.

Muscatine, Iowa.—Coldest weather ever known here on 10th; first thunder and lightning this season on 23d.

Rolfe, Iowa.—Indian summer weather from 14th to 21st.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

APRIL, 1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Washington, D. C., May, 1868.

SIR: I herewith submit, for publication in the April report of this division, a statement showing the Condition of Farm Stock of the United States at the present time; a continuation of the Special Statistics of Farm Resources and Products; a concise statement of the distinguishing features of rinderpest; and facts from various quarters.

Respectfully,

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
Commissioner of Agriculture.

CONDITION OF FARM STOCK OF THE UNITED STATES.

The customary review of the diseases of domestic animals during the year, and their condition upon emerging from winter quarters, has been taken, based upon returns to the April circulars from all sections of the country, which were very full and evidently considered with care. The practical lesson of this mass of information, if heeded, would be worth millions to the country, though it is not to be expected that disease may be warded off entirely. The following letter, from the Commissioner to the chairman of the Committee on Agriculture of the House of Representatives, is inserted as a suitable introduction to the detailed statements following:

DEPARTMENT OF AGRICULTURE,
Washington, D. C., May 15, 1868.

SIR: I have the honor to acknowledge your favor of the 7th instant, relative to "the extent of the prevalence of diseases of domestic animals in this country at the present time," and also to the propriety and value of an investigation of the nature and causes and possible cure and prevention of these diseases.

The subject is one of the first importance, affecting the interests of farmers scarcely more than the well-being of all consumers of meats. Could three-fourths of the diseases of farm stock be prevented, the cost of all meats would be lessened, and food production proportionally increased.

The annual inquiry into the condition of farm stock in the United States at the close of winter, and the diseases and mortality of the past year, has just been made by the statistical division of this department, and its results have been analyzed and condensed. It shows that the past winter has been unusually favorable to the health of domestic animals, and that leanness and feebleness, which might almost be said to be the rule throughout whole States one year ago, are now the rare exception. The uniformly low temperature of the western States, with the absence of severe storms, while causing the consumption of an unusual amount of hay, grain, and fodder, proved conducive to health and fine condition; so that returns of "condition" are everywhere burdened with such phrases as "very good," "extra good," "excellent," "better than for years," and "better than was ever before seen." As an instance, and not the only one,

showing total exemption from leanness, fifty counties of the State of Iowa report "very good;" a few others in equivalent terms, with no county acknowledging inferior condition. The long drought of last autumn in the Ohio valley so injured late pasturage as to affect injuriously cattle and sheep in a large area, and to carry the injury to a certain extent through the winter; and in some places cattle suffered from scarcity of water through the same cause. In the New England States the winter was also very favorable to health and growth. To some extent sheep suffered from the neglect which invariably follows depression and temporary unprofitableness of any agricultural interest in this country. In the southern States both cattle and sheep were affected, more or less seriously, by the invariable neglect and utter lack of shelter to which they are subjected. It is well known that no provision, either of food or shelter, is made for stock in the more southern States, with very rare exceptions, and to a less general extent this may be said of the northern and western States; and yet, in many cases, especially where cattle have wintered in canebrakes, they have come out fat in the spring. A larger portion came from their winter quarters of fence corners or old fields, lean, hungry, even emaciated, while the bones of many others strew the waste places on which they have starved.

The mortality resulting from exposure, starvation, and other common forms of disease, makes a considerable aggregate of loss; sometimes but two or three per centum, in some localities five, and occasionally ten, and even twenty per centum of the total number of cattle and sheep in the township or county. The occurrence of epizoötics and contagious diseases often sweeps off a large portion of the stock of whole neighborhoods. In the item of swine twenty-five per centum of loss from hog cholera is not unfrequent in a county, and fifty per centum has been reported to this department in several instances.

Notwithstanding the fact that prevailing diseases have been less fatal and general than in previous seasons, cattle have wintered much more successfully than in former years. The aggregate losses of farm animals of all kinds for the past twelve months could not be covered by fifty millions of dollars.

The Spanish fever, communicated by Texas or Gulf coast cattle to those of the country through which they pass in travelling northward, and which has proved so fatal for several years in Texas, Arkansas, Missouri, and Kentucky, has been less destructive than usual the past year, in consequence of the restrictive or prohibitory measures adopted by citizens of the border, yet its ravages have been continued in several counties in Missouri and Kansas, and in Barton, Newton, and Towns counties, Georgia. The loss in a single season has exceeded $200,000 in one sparsely settled county, from this cause. The disease is peculiar—fatal in almost every case; is highly contagious, while the animal communicating the contagion appears to be exempt from disease and improving in flesh; and it yields to no remedies, and is but slightly modified by treatment.

A lung disease, locally characterized as pleuro-pneumonia, has been prevalent in the vicinity of Baltimore, in eastern Pennsylvania, and, to some extent, about Washington and Alexandria.

Abortion in cows has occasioned no inconsiderable loss; more severe in New York and Vermont than elsewhere. Local investigations have been made, as yet without conclusive results.

A disease in Nassau county, Florida, has swept away twelve per centum of the cattle, and in Baker county, in the same State, 2,000 died last spring. In several counties of North Carolina, and in Charlton county, Georgia, an unknown disease has destroyed fifteen per centum.

A great variety of diseases has attacked sheep, destroying not less than a million in number, in addition to a large percentage of lambs lost by exposure or from other causes.

Horses have fallen victims to many named and unknown diseases in all sections of the country. In Gates county, North Carolina, the loss is reported at

twenty per centum from a disease commonly designated "blind staggers," and other portions of the south have been severely afflicted with the same disease.

The mortality among swine exceeds that of any other species of farm stock, involving a loss of not less than fifteen millions of dollars, though the extent of the ravages of hog cholera has been less than in previous years. Not unfrequently from 1,000 to 5,000 hogs are reported to have fallen in a single county. In the Ohio valley and the southern States this disease has been most prevalent. In some localities it has discouraged the raising of this variety of farm animals, and in many pork producing districts it has cut off the entire surplus for shipment, leaving a scanty supply of bacon for local use.

In view of such facts as these, I deem a scientific investigation of the causes and character of these maladies worthy of the early attention of Congress. If remedies may not be found for all of them, the best means of prevention can certainly be pointed out by veterinary science.

I am, very respectfully, yours,

HORACE CAPRON, *Commissioner.*

Hon. ROWLAND E. TROWBRIDGE.
Chairman Committee on Agriculture, House of Representatives.

CONDITION OF FARM STOCK AT THE CLOSE OF WINTER.

The heavy losses and depreciated value of cattle and sheep during the winter of 1866–'7, from insufficient feed, care, and shelter, in those portions of the country where good barns and constant attention are not deemed vital points in stock-growing, have evidently had an influence in the direction of sound economy, true humanity, and good husbandry. It is remarked particularly that greater attention than usual has been given to the care and feeding of the animals of the farm, and the results have been satisfactory and remunerative. The past winter has also been peculiarly favorable to the health and comfort of domestic animals. The season has been long, uniform in temperature, and not excessively cold; and these characteristics have been more general than usual throughout the national area, which includes so many varieties of climate and meteorological conditions. In the eastern and northern States hay was generally abundant; in the Ohio valley, between latitude 38 and 40 degrees, the long and severe drought diminished the supply of feed, so that this region of ordinary superabundance of forage was put for once to a severe test, and in some places an actual scarcity resulted.

The necessity of barns, or efficient shelter of some description, in the entire area west and south of Pennsylvania, demands the immediate and urgent consideration of humane and thrifty farmers. The region of the northern Mississippi and Missouri is far better calculated for grazing and feeding of stock than for growing of cereals. It combines a healthy climate with a deep, fine, rich soil, and a long summer of high temperature, giving rampant growth to vegetation, succulence, bulk, more straw than grain, more grass than seed, a better growth of green than of white crops; and its capabilities are not improved, or its resources utilized, by growing grain and ignoring cattle.

In Wisconsin, Minnesota, Iowa, and to a great extent in more eastern States, the only barns, with few exceptions, are poles or boards forming a skeleton frame, covered with heavy masses of straw from the stacks, from the interior of which nearly all light and air are excluded, and in which horses, cattle, and sheep lie upon their filth, until the whole structure is a mass of rotten straw, mold, and reeking dampness. In some cases these rude shelters are arranged with some regard to cleanliness and healthfulness of stock, but most of them are damp, noisome, and repulsive in the extreme. The business of stock raising will never be sufficiently extended, or properly remunerative, till some attention, some expense, is bestowed upon barns and cattle sheds.

In the south it is a little worse, and only a little, with no barns or shelter whatever. In a good winter, in the lee of fodder stacks, the protection of a forest, or the dryest hummocks of a canebrake, the animal may seek the range in the spring in a medium condition. The attention of southern farmers is called to the urgent necessity for a better provision of forage for horses and cattle. The most disheartening reports of weakness and death from lack of nutrition have been received—in some instances of horses and mules dropping down exhausted in the furrows. The millions lost by such indifference and inefficiency, in the sacrifice of flesh, health, and ability to fatten, are scarcely less than the heavy losses now incurred by actual disease.

The eastern, the western, and northwestern States report, almost without exception, the successful wintering of cattle; a few exceptions are named in New York and Pennsylvania, and a larger number in Ohio. The following local notes include most of the counties reporting unfavorable condition:

Salem, New York.—Poor from long and severe winter.

Niagara, New York.—Fine during the winter, but continued "dry weather and frosty nights are having a bad effect, and they do not look as well as they did."

Onondaga, New York.—Good; attributed to "a better system of housing. A man with any regard to Christianity or his pocket will not allow his cattle to range unprotected in open fields."

Erie, New York.—A little below the average.

Western Maryland—As bad as in 1867.

In Lunenburg, Lee, Albemarle, Gloucester, King William, and Tazewell counties, Virginia, "poor condition" is reported; in Norfolk "never worse."

In Harnett, Bertie, Cumberland, Cabarrus, Franklin, Sampson, Gates, Guilford, Camden, Onslow, Stanly, Caswell, Hertford and Jackson, North Carolina, the condition is placed below the average.

In Lexington and Union districts, South Carolina, "below the average."

In Georgia the counties reporting similarly are Columbia, Chattooga, Charlton, Merriwether, Glynn, Decatur, Tatnall, Johnson and Baker.

Nassau, Florida.—Poor.

Clay, Alabama.—Poor.

In Mississippi, Oktibbeha, Yazoo and Leake, poor.

In Louisiana the parish of Avoyelles returns condition "very bad."

In Texas, Harris, Gillespie, Navarro, Dallas, Victoria, Lavacca, Hindman, Falls, Hunt and Prairie, below an average.

Yell, Arkansas.—Poor but healthy.

In Tennessee unfavorable returns come from Meigs, Bedford, Haywood, Shelby and Davidson.

Henry, Kentucky.—Poor; drought injured winter grasses.

Franklin, Kentucky.—Poorer than usual.

Jefferson, West Virginia.—Poor.

In Ohio the following counties return cattle as "below the average," "rather poor," or "thin:" Seneca, Miami, Jefferson, Butler, Harrison, Fayette, Washington, Madison, Highland, Coshocton, Athens, Hancock, Wayne, Ross, Shelby and Fairfield.

Sanilac, Michigan.—Not so good.

Emmet, Michigan.—Poor.

Waushara, Wisconsin.—Very poor.

Sheep are reported in far better condition than last year. Upon examination of returns of a greater portion of the counties of the several States, the following are the only named exceptions to the rule of general health.

Maine.—Kennebec.

New York.—Chautauque, Washington, Suffolk and Seneca.

Pennsylvania.—Dauphin, Erie, Armstrong, Susquehanna and Huntingdon.
Maryland.—Anne Arundel.
Virginia.—Lee, Gloucester, Madison, Tazewell, Scott, Patrick.
North Carolina.—Harnett, Bertie, Mecklenburg, Guilford, Perquimans, Greene, Hertford, Richland.
South Carolina.—Columbia.
Georgia.—Chattooga, Merriwether, Johnson, Catoosa, Morgan.
Florida.—Levy.
Mississippi.—Yazoo, Amite, Marion, Madison.
Louisiana.—Avoyelles, Plaquemine.
Texas.—Harris, Hays, Navarro, Dallas, Blanco.
Tennessee.—Meigs, Sevier, Shelby, Fayette, Davidson.
Kentucky.—Owsley, Carroll, Boone, Rockcastle, Anderson, Franklin, Henry.
West Virginia.—Jefferson, Wood, Putnam and Lewis.
Ohio.—Holmes, Seneca, Miami, Jefferson, Erie, Butler, Clinton, Geauga, Harrison, Washington, Madison, Highland, Tuscarawas, Coshocton, Athens, Monroe, Hancock, Wayne, Ross, Perry, Shelby, Muskingum, Carroll and Fairfield.
Indiana.—Brown, Jefferson, Pike, Porter, Perry.
Illinois.—Crawford, Cumberland, Iroquois, Lee, Grundy, Pope.
Missouri.—Osage, Carter, Phelps, Clark.
Iowa.—Warren, Kossuth, Montgomery.
Wisconsin.—Columbia.

The following extract illustrates the scarcity in those portions of the west that suffered most from the drought:

Ottawa county, Ohio.—Cattle and sheep have fared alike during the winter, viz: on short rations. The severe drought set in in June last year, which of course affected the hay crop, and continued all through the summer and fall and cut short the pasture and corn crop. The farmers were compelled to feed their horses and cattle at least two months earlier than usual, which was so much taken from a scanty winter store. The winter too has been noted for being continuously cold, and all kinds of stock have needed more feed than usual, but did not get it because their masters did not have it to give; consequently, cattle and sheep will come out of their winter quarters looking worse than usual.

DISEASES OF HORSES.

Less than the usual amount of diseases in horses is reported. The contagious diseases so prevalent during the war have disappeared in a great measure. In Alabama and Tennessee horses and mules have died from "eating bad corn," brought down the river. Glanders is reported in Alleghany and Washington, Maryland; in Nelson and Smythe, Virginia; in Rockcastle, Kentucky; in Oktibbeha, Mississippi; in Avoyelles parish, Louisiana, and in other counties, designated in the following notes. In Gates, North Carolina, a loss of twenty per centum from blind staggers is chronicled, and in Emanuel, Georgia, the same disease has prevailed to an alarming extent. Lung fever has occasioned some loss in Jefferson, Pennsylvania. Inflammation of lungs and bowels have been fatal in Livingston, Michigan.

In Westchester county, New York—

A great number of horses were taken very suddenly with loss of appetite, shivering, swelling in the throat, which generally proved fatal in two or three days. The horse doctors could do nothing for it; some of them considered it a sort of diphtheria. Whatever it was, not one taken with it survived.

In Bucks county, Pennsylvania, there is some complaint of lung fever among horses; in York, glanders, colds, and distemper have caused some fatality.

A few cases of distemper are mentioned in Cecil, Maryland.

In Virginia the legacy of the war, in glanders and other diseases so prevalent in 1865 and 1866, has mainly disappeared, few counties reporting any form of disease. Glanders to some extent is found in Nelson and Smythe; in a small neighborhood in Montgomery several horses have died from jaundice;

"many die" of gleet in Highland; pneumonia has "prevailed to some extent" in Norfolk; "distemper" is reported in King William and in Cecil; an aggravated form of distemper, called "Kentucky distemper," in Craig, has been almost universal, "killing a number of fine animals, and seriously injuring those that remain," and in Middlesex an unknown disease, the symptoms of which are not given, has proved fatal to mules and horses.

An epidemic in Perquimans, N. C., and adjoining counties, has been productive of considerable losses among horses; it was described by local surgeons as apoplexy. Our correspondent says of it: "The treatment recommended by Youatt and others has in almost every instance proved inefficient. The only cases which have come to my knowledge as having been successfully treated were those said to have been given calomel, followed with Epsom or Glauber's salts, and the sulphate of quinine in very large doses. I saw none of these, but did see many which were treated by bleeding, (largely,) aloes, (Barbadoes,) as a cathartic, and blisters, with cold applied to the forehead; nine-tenths of these cases proved fatal. I have not received information of this disease having appeared in any other than malarious districts. May it not be influenced by the same causes which produce our ordinary congestive or pernicious fevers? and if so, may not the success said to have been accomplished in the treatment above be owing to the antiperiodic effects of quinine? The actual loss in this county I am not able to arrive at definitely, but feel confident it would reach if not exceed from eight to ten per centum of the horses in the county." Our Onslow reporter says: "Staggers has been quite prevalent and fatal to horses, especially to young horses, and large numbers have died from this awful malady, and a few have died from phrenitis, or inflammation of the brain, produced by over-exertion; staggers is natural to this section, where horses are allowed to run in the pasture; horses that are kept stabled seldom have it. Farcy and glanders have prevailed to some extent and proved very fatal, more particularly the latter. Large numbers of horses, mules, 'government stock' from the corrals, are scattered all over the country, and are dying very fast with the glanders; the country is filled with broken-down 'government stock.'" In Craven horses and mules have died with glanders, and the staggers was also very fatal last fall. The correspondent says: "We have had no staggers in this country since 1855, until last year; during that time we had very little bilious fever, or ague and fever. Bilious attacks among the people and staggers among the horses seem to prevail together, and they may be, and probably are, produced by the same causes. Staggers prevails only in the autumnal months; horses are more subject to it than mules; nineteen-twentieths of all the animals attacked die." In Sampson a disease known as "sleepy staggers" carried off a considerable number in the months of August, September, and October. It is worthy of note that all the disease reported exists in the tide-water counties. Great fatality attended a disease among horses and mules in Camden, which was at first thought to be "sleepy staggers," but afterwards decided to be lung fever. The symptoms were, first, a chill, followed by high fever, with drowsiness, loss of appetite, and death on the fourth day. Some farmers lost all their horses. The fatality was not so great among mules. Treatment for lung fever cured many cases; a similar disease is estimated to have carried off 20 per cent. of the horses of Currituck. Some cases were successfully treated with this prescription, viz: half a pint of gin, quarter of a pound of aloes, half an ounce oil of sassafras, two ounces sweet spirits of nitre, thoroughly mixed, and given as a drench.

In South Carolina two districts, Richland and Abbeville, report cases of glanders; and in Georgetown 15 cases of blind staggers are noticed, 13 proving fatal.

Detailed reports from 40 counties in Georgia represent the health of horses to be unusually good, the only exceptions named being a few cases of glanders in Talbot, and blind staggers in Benton and Crawford.

The only exception to the universal healthfulness of Florida is reported from Manatee, where they sometimes "become *sanded* by feeding where the grass is short, but are easily relieved by physic, if seasonably given."

No unusual diseases of horses are returned from Alabama. The same may be said of Mississippi, except Madison county, where many losses have resulted from sudden attacks resembling colic; the animal swelling rapidly, and standing until he falls dead in a few hours from the attack.

A Texas correspondent says:

About three months ago a disease made its appearance among the cavalry horses at San Antonio and Austin, Texas, which spread among our stocks of horses on the prairies, from which the losses in this and adjacent counties must have been ten per centum, mostly among one and two year olds; it was supposed to be black tongue. The treatment was generally washing their mouths with strong copperas water; some used a weak solution of nitrate of silver.

The correspondent for Craighead county, Arkansas, says:

No unusual disease has prevailed among horses with the exception of buffalo gnats, which have been very troublesome for some three weeks during early spring, frequently causing death by the animal inhaling large quantities. In Drew county an unusual disease prevails.

The following statement comes from Desha:

A disease, vulgarly called "sharbone," prevailed during the summer months of last year, and proved fatal to a large number of horses and mules. The disease is said to have originated in France, some 20 years ago, and was then very fatal; it spread over Europe, with the exception of Ireland. From the best information I can get I am led to believe that at least 250 mules and horses died in this county alone during the past summer from this disease. The animal was attacked in the neck, and the first evidence of it was the appearance of a swelling on each side of the throat, something like wind-galls; the swelling gradually extended back to the shoulders, and then appeared to concentrate in the heart, killing the animal very suddenly. Although many remedies were resorted to, I know of but one case where a cure was effected after the disease had fully developed itself, and the remedy then used was the juice of the roots of the common poison oak vine, extracted by boiling the roots, and continuously applied for two days, externally, as hot as the animal could bear the bath.

From Tennessee the distemper is reported in Montgomery, and a fatal disease has made its appearance there under the name of "twelve-months' glanders," of which the correspondent says: "It is very slow, but very sure."

In Hickman, the "yellow glanders" has prevailed to some extent among horses and mules bought at government sales.

No disease is mentioned by our corps in Louisiana save a few cases of glanders in Carroll parish. "Is there any remedy?" asks the correspondent at that point. None; none whatever.

In Texas, glanders also prevails to some extent in Lamar; distemper, in Nueces; Spanish fever, in Burnet; farcy, in Red River; also a disease, not named, in Bell county.

DISEASES OF CATTLE.

Exemption from epizoötics and all uncommon maladies of cattle is distinctly announced in a large portion of the counties reported; in the northern States exceptions to this rule are comparatively rare. The diseases most fatal are pleuro-pneumonia, Spanish fever, murrain, distemper, abortion, black leg, &c. Starvation in some cases has resulted from the pernicious practice of burning the range, which destroys much of the value of southern vegetation. In Duval county, Florida, a disease vulgarly named "salt sick," supposed to result from eating plants growing near salt water, has been fatal. In Baker, Florida, an unknown disease has destroyed 2,000 cattle during the past year. A disease, the symptons of which are not given, caused the loss of fifteen per centum of the cattle of Charlton county, Georgia. A disease of the gall, affecting milch cows, occasioned some loss in Washington, Tennessee. Murrains and distempers, without defined characterics, are reported from various quarters, particularly in

North Carolina and South Carolina. While in some localities many herds were starving, in Tompkins, New York, "a few died from over-feeding." The Spanish fever has been less severe than for many years past; in Barton, Georgia, twenty cases are reported, a few in Newton and towns, in the same State, and some mortality in Missouri and Kansas. Pleuro-pneumonia is reported from Baltimore, Maryland, and Montgomery, York, and other counties in Pennsylvania.

Pleuro-Pneumonia.—Our correspondent in Hudson, New Jersey, says:

We had the pleuro-pneumonia in our county during the past year, and fortunately kept it in check by a strict quarantine. Thirteen cows died in the herd in which it broke out. Mr. John Boyd, jr., their owner, says he purchased a cow in New York city which introduced the disease into his herd. His cows were fed on grains brought from the breweries during the winter, which in our experience causes them to be more susceptible to the disease than cows fed on hay and roots.

A Maryland correspondent writing from Baltimore county says:

There is a disease prevailing among cattle in and around this county, proving fatal in nine cases out of ten. It is known to be very contagious, and heavy losses have occurred in many localities. The disease is pronounced by many experienced dairymen as "dangerous," and is as much dreaded as the rinderpest, that dreadful scourge of cattle in Europe. The disease has baffled all medical skill, and thus far remedies have proved unavailing; it is probably pleuro-pneumonia, or identical with it. Heavy losses of valuable cows have taken place in a number of stables: a loss of 14 in one stable; in another 20; in another a loss of 35 is reported out of 38; in another a loss of 30 out of 70; in many other stables the losses are in proportion. This same disease prevailed one year ago in this locality, and was then called "lung disease," but it is now universally conceded to be pleuro-pneumonia. The animal when attacked becomes exceedingly sluggish and low-spirited; appears to be not in much pain; refuses food; the secretion of milk ceases from the day the animal is attacked: death follows in from five to ten days—the mortality being almost universal. An animal which is discovered to be affected with the disease should be at once removed from the herd, as the disease spreads rapidly by contact. A bill will probably be presented to the legislature at an early day to prevent this much dreaded disease from spreading to other localities.

Our correspondent from Union district, South Carolina, says:

Last year cattle seemed to be generally affected throughout the county with a disease which attacked them, of all ages and conditions; perhaps nine-tenths of them were attacked, and about one-fifth recovered. The disease was styled distemper, or murrain. The cattle when attacked grew languid, feverish, lost appetite, became very weak, and generally died within ten days from the attack. Those which recovered required several months to regain their usual strength, flesh, and spirits. No remedy was successfully used. To prevent the disease, after two had been attacked, I used salt, slacked lime, and tar freely, and had no other case. I believe the free use of the above twice a week will prevent nearly all the diseases among cattle.

SPANISH FEVER.

Our correspondent in Vernon county, Missouri, sends us the following:

Previous to the year 1867 we had but little protection from our State laws, or, if we had any, these laws were not enforced, and great losses in cattle resulted. This is a new and sparsely settled county, and, consequently, not as wealthy as many others, yet we have lost in one season (1858) in this county over $200,000 worth of cattle by the Spanish fever. This disease has been known in this county since 1853, and has been more or less fatal every year the Spanish cattle have been driven through. Perhaps I cannot better describe the facts concerning this disease than by copying a part of a report made to the Missouri State Board of Agriculture, which reads as follows:

"This disease was first recognized as having been propagated by cattle driven from Texas some 12 or 13 years ago; the disease having been in the county some two seasons previous to its having been traced to the Texas cattle.

"From the first breaking out of this fever it was found to be confined to the large roads or highways running through the county from south to north, and, finally, was centred on the Texas cattle, I believe, in the year 1853, by its being confined to one highway through the county over which these cattle passed that year. On this road the disease was quite fatal, killing about 50 per cent. of all the cattle on the road, and persons living near the watercourses over which the road crossed lost as high as 90 per cent. Captain Freeman Barrows and Peter Colley, the one living at the ford of the Osage river, the other near by, lost 90 per cent.; one of them owning about one hundred head, while the other had consider-

ably above that number. Mr. Collins, living at the ford of Clear creek, south of the above, lost an equal proportion. The disease being in no other part of the county that year satisfied the people, on this road at least, that they had found the true origin, as it had been among the cattle in the county for two summers past. In a season or two after almost every settler of the county was convinced that the Texas cattle in some way communicated this fever to our stock, although a few persons, living secluded from the great highways, were unbelievers, and still remain so. In fact, the way this disease is propagated—the obscurity surrounding it, together with the different opinions of persons familiar with it—gives them, at least, a reasonable excuse for doubting the prevailing belief. Two things are agreed to by all: the symptoms of the fever, and its fatality—the latter being much greater in a warm dry summer than in a cold wet one; the disease always ceasing when the frosts have killed the vegetation.

"The first symptom of the fever, discoverable several days before any appearance of sickness, is a dry cough, noticeable by careful observers. In a few days after this the nose becomes dry and the ears slightly drooping, and more flies will collect than on healthy cattle. At this stage the breath will be found to have lost its sweetness and assumed the sickening feverish smell generally, if not always, found in the Texas cattle, which I can best describe by comparing it to the smell of our slaughter-houses, or constantly crowded stockyards in cities. From this condition in one or two days the fever gains its highest stage, and is found to have disseminated itself over the whole body, the heat being very great; the arteries of the neck are seen to beat in short, heavy throbs, the ears becoming very much lopped, the hinder parts reel in walking, the animal getting up or lying down with difficulty; the breath and exhalations are very disagreeable, the end of the tail usually hollow for two or three inches; the pith in the horn has commenced to decay, if not already decayed; the animal refusing to notice the herd, remaining stupid, if not disturbed, neither seeking food nor water. Some, in this stage, will pass water mixed with blood, and dung naturally, others will pass water of a natural color and not dung at all, or but very little, and that in a dryish lump. In another type of the disease, which will occur perhaps in every eighth or tenth case, after being taken the same way, and having the same symptoms as those described, even to the hollow horns and tail, the animal does not get weak, sluggish, or stupid, but is always to be found on its feet, in a watchful attitude, with head turning to any noise, which, if close by, it rushes towards, even through fences or against trees, the eyes being of a green cast, very glaring and wild; those of the first type have a dead, sleepy, and glazed appearance. Both these classes die, as I have described them, without any change, except that the hair deadens before death and has the appearance of that on a dry hide.

"The drove mentioned as having passed through the county in 1853 was owned by Mr. Richard Burris, of Spring river. They were driven from Texas the fall previous and wintered about 50 miles south of here, near Sarcoxie. In the early part of June, Mr. Burris came into this county with his cattle, apparently healthy, in good order, and no lame ones in the drove, numbering about 450 head. He made a slow passage through the county, grazing on the best grasses near the road unmolested, as no one knew at this time that this species of cattle communicated a disease to ours. Early in July the fever broke out on the road travelled by this drove, lasting until the frost put a stop to it, with the fatality previously mentioned. As the disease this year was in no other locality except where these cattle were driven and grazed, the citizens, after carefully tracing their route through the county, in all its windings, came to the conclusion, for the first time, that this fever was engendered from the Texas cattle. This was fully verified in the next year; and up to the outbreak of the war hundreds of cases occurred to prove that they were not mistaken. No Texas cattle, until this year, (1866,) except two yoke of oxen worked here in the fall of 1865 by Mrs. Box, have passed into or through this county since 1860; neither has there been a case of Spanish fever during this period, or any other fatality among our cattle. Mrs. Box's oxen, so far as could be seen, were healthy, and not lame. The neighbors whose cattle came in contact with these oxen were Mrs. Smalley, Mr. Cothran, and Mr. Packard, each having the Spanish fever among their stock, losing some notwithstanding the lateness of the season. About 3,000 head of Texas cattle passed through this county in the month of June this year, (1866,) and a portion of them reached six or eight miles into Bates or the adjoining county before being turned back by citizens of that county. They returned on the same road previously travelled, making no delay in their passage either way more than was necessary. The disease did not break out for some six weeks after the passage of the droves—many more recovering than usual, and about 40 per cent. dying—extending into Bates county to the point where they were turned back. It proved more fatal on the crossings of watercourses, killing about 70 per cent. In 1858 my stock were exposed to this fever by coming in contact with a drove of Texas cattle. The fever was very bad among them, one or two dying every day through the month of August; they were in daily contact with Mr. Millender's stock, who kept a herder, not suffering them to reach the ground that had been used by the Texas droves, yet he had not a single case of fever. When spoken to about keeping my stock from coming in contact with his, he told me there was no danger of our own cattle diseasing one another. I have since watched many such exposures, and in no case has the fever been propagated. The farmers have each an opinion as to how the disease was propagated to their cattle, some thinking it is through the lame ones, a few of

which will be found in almost every drove coming from Texas. Their feet become worn out and sore from long travel, matter forms between the hoofs and is left on the ground and in the water through which they pass, and, it is contended, this inoculates our cattle by being taken in the stomach or otherwise. Others think it is done by the excrements left by those that are lame or diseased, while some think it is through the slobber or froth which is left on the grass. On one thing they agree, that the fever is communicated in some way, raging until the cold weather puts a stop to it, no remedy appearing to have any effect. From the few cases mentioned, which are selected from many of like nature, I have been led to believe, first, that the disease is conveyed to our cattle by those from Texas; second, that the feeding of a large herd one winter in this climate does not prevent the spread of the infection from them the next season; third, that Texas cattle, in apparent good health, give disease to ours; fourth, that the disease is not contagious from our own cattle to each other; fifth, that killing frost will stop the disease; sixth, that no remedy has been found to cure this fever.

"By a very close observation of this disease among my own and neighbors stock for the last thirteen years, I have generally found, on opening those that had died, but very little blood, and the following results: in those that passed water mixed with blood the kidneys and surrounding parts were entirely decayed, the other parts of the body sound; those that did not dung at all, or but little, with manifolds perfectly dry and partly decayed, while the large stomach would be more or less mortified, other parts healthy; those that appeared to dung and pass water naturally, with a liver more or less decayed, the gall always swelled to its greatest tension, other parts healthy; those that were on their feet in a watchful attitude, the brain was found more or less decayed. This leads me to believe the disease is in the blood, which finally becomes congestive, destroying the parts in a few hours after it becomes seated, and no doubt in many cases could be cured if we knew exactly where it had located itself—blood-letting not being sufficient of itself to check the inflammation. The hollow horn and tail no doubt is caused by the fever destroying the blood in the extremities before it does in the vessels, which it does in a great measure before death. This county has suffered very severely with this disease for a number of years, losing, in the year 1858, cattle estimated to the value of near $200,000. The present law is very defective, First, it only precludes the sick ones from passing through the county, and few men under oath can say that because a steer has an unhealthy smell he is sick; secondly, in order to separate the lame or sick ones, if any, the drovers under the present law are required to impound them in order that the selection may be made, &c. But it is little use to select the sick ones when there is equal danger from those that are apparently well."

The above is as good a description of this plague as can be given until the Congress of the United States or our State legislatures shall be induced to have it more thoroughly examined. That it is nearly related to and can be be classed with the rinderpest of Europe there can be no doubt. It acts here in its mildest form, for this reason: our cattle are confined to no fenced pastures or regular watering places, but have the range of miles of open prairie. Whenever our cattle are confined to a limited range, as those of Mr. Colley and Mr. Barrows, before mentioned, the fatality increases from 50 to 90 per cent. That Congress should take some action in this matter there can be no doubt. Why delay investigation until this disease reaches the States east of the Mississippi, and millions are lost in a season? I have often stated, and still think, that the best thing that can be done in the premises is to open a public highway for the passage of Texas cattle. Drovers would be willing to pay for the use of such a privilege. The public domain in Kansas intervenes between the cattle region of Texas and the nearest point on the North Pacific railroad. Here the highway could and ought to be opened, until the southwest branch of the Pacific railroad might offer a greater convenience. This matter is worthy of investigation by the general government. Great interests are involved both to Missouri and Texas.

The writer is referred to an article in this issue, entitled "We have no rinderpest," which will convince him of his error in classing Spanish fever with that disease. The virus in the former case is communicated to other cattle by animals in apparent health, which may be constantly improving in condition, while the subjects of the infection inevitably sicken and generally die without in turn communicating the disease to others. These facts are as well substantiated in the severest as in the mildest types of the malady. In the rinderpest, on the contrary, the poison is fatal to the animal communicating it and to all others through which it successively passes, with very few exceptions, mitigated very slightly, if at all, in its virulency, by its diffusion through the blood of many healthy subjects. If necessary other points of difference could be shown, but it is very evident that the Spanish fever is very different from the rinderpest, by no means so generally fatal, and only in a limited degree contagious.

Greenwood county, Kansas.—"In September, 1865, large numbers of cattle in my immediate neighborhood died with Spanish fever. I lost 52 per cent. of

my own cattle that were running at home, while three other of my herds which were four or five miles away from the range where the Texas cattle had fed were perfectly healthy. The experience of my neighbors was similar to my own, and the route over which the Texas cattle that communicated the disease were driven could be traced by the carcasses of domestic cattle around the watering and camping places. The disease attacked our domestic cattle from 10 to 20 days from the time they were exposed."

Abortion.—The correspondent of Essex, New Jersey, says of abortion:

I cannot help thinking that when the causes of abortion among cows come to be properly investigated it will be found that keeping a large number of them confined closely together in one house, all breathing the same atmosphere, and that a very impure one, from the disregard of strict cleanliness, which prevails too generally, without proper exercise and without due friction and cleanliness of the skin, has more perhaps to do in inducing the disease than all other causes combined. Still, there must be some remote cause giving rise to this specific form of morbid action, which deserves the closest study and investigation on the part of pathologists and scientific breeders.

DISEASES OF SHEEP.

The losses from disease have been greater among sheep than cattle, due mainly to the want of care and feed, and to some extent, apparently, to constitutional debility induced by injurious practices of fine-wool breeders. Grub in the head, liver rot, scab and foot rot, are too common in all parts of the country. In New York, Ohio, and Texas, disease appears to be more prevalent than elsewhere; in the latter State scab and foot rot producing most of the loss. In Livingston, New York, one-eighth of the total number are estimated to be suffering from the foot rot. The Onondaga correspondent says, with some show of probability, that "where a lazy farmer's flock becomes infected they are sure to have it always, though it can be cured."

In Beaver, Pennsylvania, an unknown disease has caused much loss. One man lost 100 from a flock of 330, partly from grub in the head, but mostly from the malady referred to, the animals falling into a kind of stupor, post-mortem examination showing the intestines lumpy or knotty. The flock was well kept. Another wool grower lost 80 from a flock of 275, and another 200 from a flock of 800, the latter from scab and foot rot, probably intensified by over-crowding in winter.

Our correspondent in Athens, Ohio, represents the losses of sheep as more than a fourth of the entire number. Feed fell short and flocks were turned very early out upon the naked plains, either to obtain a scanty subsistence or to die. In Medina, Ohio, the loss is placed at six or seven per centum, a lower figure than would have resulted but for culling out the poorest for their pelts.

Few reports of losses of lambs are received. One-fourth of the young lambs in Middlesex, Virginia, were lost by inclement weather. In Barry, Michigan, goitre in lambs has been fatal. The reporter for Rockingham, New Hampshire, claims that Southdown lambs are stronger than Merinos, and that fewer have died. The losses of young lambs is very general and often quite severe.

Losses of sheep from disease during the past winter have exceeded those of the previous winter in the following counties:

New Hampshire.—Sullivan.
New York.—Wayne, Seneca.
New Jersey.—Essex.
Pennsylvania.—Mercer, Dauphin, Armstrong, Susquehanna, Butler.
Virginia.—Gloucester, Tazewell, Norfolk.
North Carolina.—Cabarrus, Guilford, Davie, Greene, Caldwell, Hertford.
South Carolina.—Georgetown, Union.
Georgia.—Glynn, Tatnall, Johnson.
Florida.—Nassau, Levy.
Mississippi.—Yazoo, Marion, Hinds.

Texas.—Navarro, Ellis, Hardin, Dallas, Victoria, Lavacca, Blanco, Henderson, Falls.

Tennessee.—Meigs, Knox.

West Virginia.—Putnam.

Kentucky.—Carroll, Fayette, Franklin.

Missouri.—Webster.

Illinois.—Grundy.

Indiana.—Scott, Newton.

Ohio.—Holmes, Seneca, Wayne.

Wisconsin.—Juneau.

Holmes county, Ohio.—"A very fatal disease has prevailed among sheep, resulting in a loss of probably eight to ten per centum in some neighborhoods, and perhaps it would average that through the county, some farmers having lost more than half, and some nearly or quite all their flocks Some call the disease dropsy. Owing to the extreme drought of last fall and the scarcity of pasture they went into the winter in a thin or poor condition, and were not well prepared to stand the long, severe winter that has not yet closed with us."

DISEASES OF HOGS.

The losses from hog cholera, ordinarily not less than $15,000,000 per annum, and greater probably than the damage by all diseases to any other kind of domestic animals, have been less the past year than for several previous seasons, yet is so destructive as to cause a general despondency among swine breeders; to interrupt the prosperity of the surest corn-growing sections, and increase the cost of living to consumers of ham and bacon. In every direction calls for a remedy are made, but they cannot be satisfactorily met. No remedy is likely to be found, as in the case of rinderpest in the cattle of Europe; but veterinary science, if such a science exists in this country, should do something in devising means of prevention. It is important in its influence upon the health of the human family. It cannot be possible that the flesh of those hogs that partially recover is fit for human food; and yet it goes into consumption in some form. In Franklin, Kentucky, our reporter says that "the sickness of several persons, it is thought, resulted during the winter from eating diseased pork; no death ensued, and no investigation was made." Our correspondent in Cherokee, Georgia, seems to believe—and the reader will doubtless agree with him—that something is the matter with the hogs of that county, when he says that "they can be fattened, but have all through the meat something like fish eggs, full of corruption."

In Winnebago, Illinois, a brain disease, very fatal, is reported; and in a few other localities some other forms of disease are named.

It is impracticable to attempt to give the names of all the counties reporting hog cholera. That some idea may be received of its extent and fatality the worst reports of losses will be given, as follows:

Craig, Virginia.—Fifty per cent.

Patrick, Virginia.—Ten per cent.

Tazewell, Virginia.—Fifteen per cent.

Madison, Virginia.—One farmer lost all—Forty head.

Nelson, Virginia.—Twenty-five per cent.

Chatham, North Carolina.—Twenty per cent. In some localities three-fourths of the stock.

Richland district, South Carolina.—In one section two-thirds of all.

Clark, Georgia.—One-seventh.

Morgan, Georgia.—Fifty per cent.

Calhoun, Alabama.—One-third.

St. Clair, Alabama.—Ten per cent.

Clay, Alabama.—"Very bad."

Attala, Mississippi.—Ten per cent.
Tippah, Mississippi.—Twenty-five per cent.
Marion, Mississippi.—Ten per cent.
Carroll Parish, Louisiana.—Seven and one-half per cent.
Union Parish, Louisiana.—"Slight—1,000 head."
Anderson, Kentucky.—One thousand hogs, without including pigs.
Putnam, West Virginia.—Eight per cent.; not so fatal as formerly.
Wood, West Virginia.—Farmers lost their entire crop of hogs.
Marion, Ohio.—Ten to twenty per cent. of the distillery hogs.
Martin, Indiana.—In some localities one-third.
Wayne, Indiana.—Damage, $5,000.
Rock Island, Illinois.—Ten per cent.
Butler, Missouri.—One-third lost.
St. Francis, Missouri.—Ten per cent.
It is stated in Clark (Missouri) correspondence that some hogs "died from eating grasshoppers," which are very numerous there.

WOOL ON HAND.

The following calculation is based upon the returns of per centage of last year's clip remaining in each county at that date:

Estimated amount of wool unsold April 1, 1868.

States.	Pounds.	States.	Pounds.
Maine	263,389	Louisiana	11,778
New Hampshire	278,176	Texas	310,262
Vermont	1,406,785	Arkansas	23,437
Massachusetts	210,176	Tennessee	46,205
Rhode Island	51,220	West Virginia	236,250
Connecticut	194,895	Kentucky	313,551
New York	3,997,512	Missouri	330,609
New Jersey	38,788	Illinois	957,750
Pennsylvania	1,796,550	Indiana	504,378
Delaware	8,193	Ohio	1,615,108
Maryland	66,129	Michigan	1,480,571
Virginia	131,725	Wisconsin	620,649
North Carolina	71,650	Minnesota	58,053
South Carolina	28,778	Iowa	932,895
Georgia	75,570	Kansas	27,483
Alabama	46,286		
Mississippi	77,184	Total	16,211,985

CONDITION OF WINTER WHEAT.

Rarely are our winters so favorable to fall-sown wheat as that of 1867–'8. Seldom has the temperature been so uniform and the ground so constantly covered with snow; conditions favorable to the vitality and healthfulness of the wheat plant. Almost the only complaint of winter freezing and thawing, and consequent winter-killing, comes from the latitude of Tennessee and southern Kentucky, where comparatively small breadths of wheat are sown.

The New England States, now scarcely considered wheat-growing, are awakening to the necessary importance of the bread supply, and are encouraged to attempt wheat culture more largely by the fine condition of that now in the ground. The steady cold of the long winter was remarkable, extending to the

Connecticut shores of Long Island sound. The covering of snow in Hartford county, of that State, is reported at 15 to 20 inches, completely protecting the winter grain, which is looking better than usual.

The season was equally favorable in the middle States, which report few discouraging facts affecting winter crops. In Livingston county, New York, the sowing was later than usual on account of drought, causing a comparatively puny appearance at the opening of spring; in Erie, the fields had a yellow and unpromising look, without material loss from winter-killing; and in Chautauque there is some complaint of freezing-out and sickly appearance.

Throughout New Jersey, Pennsylvania, and Delaware, there is a general expression of satisfaction with the condition of wheat, and a confident expectation of a fruitful harvest if no casualty intervenes.

In the Ohio valley, and in the northwest, wheat generally looks well. A few exceptions are noted, as in Miami, Ohio, "it is not looking very well;" in Hardin it was somewhat frozen; while the reports from most Ohio counties are quite favorable, as in Ottawa there "never was a favorable winter," in Erie it is "small but promising," and in Van Wert, "March passed without a day detrimental" to the growing crop.

In West Virginia, Putnam and Wood counties report inferior condition from winter-killing; others claim a better stand than for many years.

From Indiana the accounts of the crop are uniformly favorable, "far better than usual," "better than last year;" in some cases better than for many years; while in Miami late sown wheat is thin; the early looks well.

In Kentucky there is much diversity in the appearance, and not a little complaint of winter-killing, as in Anderson, Butler, Henry, Laurel, Scott, and other counties. It is noticed in Livingston that fields with a northern and eastern aspect look better than those lying to the south and west. Many fields in Henry have been ploughed and sown in oats.

In Illinois, and especially in the northwest, the crop is mainly spring wheat, but the fall-sown generally looks well in all that region.

Very little loss from freezing is reported from Missouri; it shared with other States in that latitude the drawback of drought in preventing early sowing; yet in many counties the returns are "never better," "very promising," or equivalent terms.

From Virginia, North Carolina, and Tennessee the condition reported is more variable. More or less winter-killing resulted in the belt between the 36th and 39th degrees of latitude from alternate freezing and thawing, the covering of snow being more general than usual, but not of sufficient depth for protection. A few counties only make the loss severe, and many represent the prospect for harvest unusually good. With every day of fine weather the frozen fields improve in appearance, materially affecting the expectations of their owners.

Further south accounts favor an abundant harvest in proportion to acreage sown.

It is worthy of mention and of careful notice, that in every locality that has suffered from freezing, those fields that were planted with the drill are comparatively unscathed, while the broadcast sowing is in miserable condition; and it is also found that thorough tillage enables the thrifty and well-rooted plant to endure the action of frost, while the carelessly seeded wheat is ruined.

WE HAVE NO RINDERPEST.

Reports are published of rinderpest in Virginia, in Maryland, in Pennsylvania; persons mentioned in connection with the prefix "Dr.," or the affix "V. S.," have assumed that the term "rinderpest" is synonymous with "pleuro-

pneumonia," which has once scourged Massachusetts; and of late the "Spanish fever," communicated by apparently healthy cattle to the stock along the route which they travel, has been characterized by the same name. Even some of the agricultural papers are asking, "Have we the rinderpest?" Were there room for doubt, or occasion for mistake, such assertions would be pardonable; but a total ignorance of the peculiarities of the cattle disease called rinderpest, which was two years ago so destructive in Great Britain, is involved in such statements. We have no "rinderpest," and never has a disease bearing its characteristics been examined and described within the limits of the United States.

It is assumed in these erroneous reports of local cattle maladies that the seat of disease in the "plague" or "rinderpest" is in the lungs, as in pleuro-pneumonia, and also taken for granted that there is no definite information concerning the post-mortem appearance of the internal organs, notwithstanding the existence of the disease in Europe for centuries and the loss of millions of cattle.

The voluminous reports of the commissioners appointed by the British government, after weary months of labor, with the aid of distinguished medical experts, commissioned to experiment and report upon the diagnosis, the general and chemical pathology, the microscopic indications, and the treatment of the disease, show conclusively that this dreaded disease is no more like pleuro-pneumonia than human small-pox is like lung fever.

Of these reports, that of J. Burdon-Sanderson, M.D., fellow of the Royal College of Physicians, makes the disease "an essential or general fever," distinguished in its local manifestations "by an alteration of the superficial structures of the skin and mucous membranes," consisting of minute capillary congestion, of increased and perverted growth of the structural elements, and increased and perverted activity of the secreting glands of the skin and mucous membrane. This characteristic is so marked that Dr. S. thus refers to the earlier diagnostic signs:

> Just as small-pox is distinguished exclusively by its eruption, erysipelas by the inflammation of the skin, diphtheria by the membranous concretion of the fauces, so cattle plague may be discriminated from all other diseases whatsoever by the alterations of the visible mucous membranes generally, and particularly by those of the lips and gums.

Dr. Marcet, F.R.S., also a fellow of the College of Physicians, shows the peculiar changes produced by the disease upon the blood, the bile, the milk, and the muscular tissue, and of the blood says: "The falling off of the water and consequent increase of solids in the blood, establishes an interesting parallel between the cholera and the cattle plague," while the flesh contains more soluble albumen than in health, the urea in the urine is strikingly increased while the temperature of the animal continues rising, the quantity of the milk diminishes rapidly and is of less specific gravity and richer in fatty matters, the bile contains more water and mineral matters than usual and is peculiarly subject to early decomposition.

Dr. Charles Murchison, F.R.C.S., physician to the London Fever Hospital, reporting upon the pathology of the disease and its relation to human diseases, gives, as the chief symptoms, fever with general depression, an apthous condition of the interior of the mouth and nostrils, an eruption of the skin, composed of roseolar patches and sometimes pustules, running from the nostrils and mouth, suppression of milk, constipation followed by diarrhœa, albuminuria, hæmaturia, and finally a condition similar to the "typhoid state" in human maladies; the principal morbid conditions after death, catarrhal inflammation, and even gangrene of the mucous surfaces, unusually dark color of the blood, peculiar odor, and great proneness to decomposition; and declares that it bears no resemblance to typhoid fever in man, and is equally distinct from human typhus, scarlet fever, erysipelas, influenza, and dysentery, while small-pox is the human malady it most resembles, not only in cutaneous eruptions, but in symptoms, anatomical

lesions, clinical history, and etiology. The doctor says emphatically, in the outset, that it is "entirely distinct from the milzbrand, or carbuncular murrain, on the one hand, *and from the epidemic pleuro-pneumonia, or pulmonary murrain*, on the other."

Dr. John Syer Bristowe, F.R.C.P., reporting upon the morbid anatomy of the plague, classes it with diphtheria and small-pox, from the former of which it differs in the character of the exudations on the mucous membranes and in the nature of its cutaneous eruptions, and from the latter in the equality of development of eruptive spots, as well as in their character. He thus disposes of an opinion often loosely ventured in the reports of this disease:

> The disease has been called the "contagious typhus of horned cattle," but there is certainly little in common between the two diseases. No one, in fact, acquainted with their pathology could possibly confound them, or could have dreamt of borrowing the name from one to apply it to the other. It has lately also been assumed to be identical with typhoid or enteric fever. The assumption, however, is even more unfounded than the last, and can only have been made in ignorance of the facts.

Lionel S. Beale, M.B., F.R.S., charged with microscopical researches, after a series of patient investigations with a microscope magnifying 2,500 diameters, considers the "highly congested state of the capillary vessels of many different textures and organs" the most remarkable of the morbid changes observed. He also notes an increased secretion of the surfaces, and that "the masses of germinal matter (usually termed nuclei) of almost all the textures of the body are invariably larger than in health." He then gives a mass of interesting data concerning changes in the vessels and in the blood, the microscopical character of the secretions and discharges, the morbid changes in the tissues, and the nature of the poison or contagium.

These reports are profusely and beautifully illustrated in chromo-lithograph, extended and minute tabular statements of results are given, a multitude of individual cases of disease and treatment, as well as post-mortem examination, are cited in extreme detail, and the whole evidence shows a more radical and exhaustive examination of the disease has been made than ever before was given to it.

Professor John Gamgee, principal of the Albert Veterinary College, London, now in this country, who warned the authorities of the coming of the disease before its appearance in England, and who from the first declared the impolicy of attempting anything but prevention, and urged strenuous measures for "stamping out" the malady at once by the use of the axe and knife, thus characterizes it:

> The cattle plague is not a local disorder; it is not an affection of any special organ or group of organs. It is a systemic disease, a fever, in which the mucous membranes and skin are specially implicated. There are important local and characteristic manifestations, usually most marked in the mouth, fourth stomach and intestines, in the organs of generation, and frequently in the respiratory passages. It is, however, something different, and something more than an inflammation of the breathing, or digestive, or generative systems. The cell growth, fatty and molecular disintegrations, desquamation and discharge of the epithelial and epidermic cells, are typical of this disease. In this way it can only be classified among general diseases, with fevers of a specific kind, and which originate from specific causes, run a definite course, manifest a singular periodicity in their progress, and have a marked tendency to destroy life."

A history of this disease, and a brief digest of the earlier reports of the Royal Commission, may be found in the department Report of Agriculture for 1865. It is to be hoped that local statements, based upon views utterly erroneous and unenlightened, may not continue to disturb the agricultural community.

SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

Continued.

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?

2. What is the average value of wild or unimproved tracts of land; and what is the character, quality, and capabilities of such land?

3. What marked or peculiar resources have you in soil, timber, or minerals; and what is the state of their development, or inducement for attempted development?

4. What crops, if any, are made a specialty in your county; and what facts illustrating their culture, quantity, and the profit derived?

5. What kinds of wheat are cultivated; and which of them are preferred; and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?

6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?

7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

MICHIGAN.

1. Of the counties making returns to our circular but one, Ontonagon, reports a decline in the value of farm lands, depreciation in this case being attributed to the great depression of the copper mining interest. Bay county claims an increase of 300 per cent; Iosco, Alpena, and Gratiot from 200 to 250; Delta, Leelenaw, Cass, Clinton, and Jackson, 100; Kent, 66; Lapeer, Ingham, Barry, Branch, Ottawa, and Muskegon, 50; Berrien, Van Buren, Macomb, St. Joseph, 30 to 40; Alcona, Livingston, Hillsdale, and Kalamazoo, 15 to 25 per cent.; showing an average increase of about 70 per cent. for the State since the estimates of 1860. Mason county has been mostly settled under the homestead laws since 1862, and farm lands have increased from $1 25 to $10 per acre.

2. Wild or unimproved lands are reported at various figures from the government minimum price up to $50 per acre, according to location and condition. In Ontonagon, in the northwest, on Lake Superior, the average value is $6 per acre, heavily timbered with hemlock, maple, birch, and pine, suited to wheat culture, fruits and vegetables. Delta county, $1 25 to $2 50; about one-tenth in hard wood, good soil; the remainder pine, sandy and poor. Leelenaw, government lands, $1 25; held by individuals, $5 per acre; soil a sandy loam. Mason, government land, $1 25 to $2 50; State swamp, $1 25; railroad, about $2 50; the swamp is in cedar, ash, and hemlock timber; when cleared makes good grass land; one-half the county in pine now being cut off, soil poor, light. Muskegon, $8 per acre; soil partly clay loam, remainder sandy. Ottawa, $8 50 on an average, though some fruit lands are selling as high as $50 to $75 per acre. Kent, average value, $15; soil various, some superior wheat land. Van Buren, $16 per acre. Cass, $25 if dry enough for cultivation without draining; wet lands not worth so much; dry lands generally timbered heavily; will produce grass, wheat, corn, potatoes, &c., in perfection, also fruits suited to the latitude. Branch, $10 to $40 per acre, mostly timber. Hillsdale, $10 per acre, generally broken by hills and swamps. Jackson, but small parcels left, worth $25 to $30 per acre. Calhoun, $15 per acre; three-fourths good farming lands when cleared; one fourth swamp, mostly without timber. Kalamazoo, mostly oak openings and beech and maple lands; soil fertile, desirable for wheat and grass. Barry, $10 per acre. Clinton, unimproved farming lands are worth

$9 per acre; quality excellent, gently rolling, half timber and half oak openings; soil varying from light sand to heavy clay; swamp lands of little market value, though they contain inexhaustible stores of peat and marl. Ingham, greater part of the wild land is wet, mostly black muck, highly productive when drained; there are also dry farming tracts, well timbered. Gratiot, $6 per acre, chiefly farm land, very fertile, producing large crops of grain and grass. Macomb, $25 per acre, various qualities, nearly all susceptible of high cultivation. Lapeer, $5 to $20; in the south, oak openings, northern portion heavily timbered; nearly all good farm land. Mackinaw, $1 25 per acre; little farming done in the county. Bay, $7 per acre, well timbered. Iosco, $4 to $15 per acre. Alcona, $1 25 per acre, though holders of pine land reserve it at that price. Alpena, a large portion of the farming lands belong to the government, and can be purchased at $1 25 per acre, while land in second hands commands from $3 to $20, according to quality and location. In several counties all the unimproved and timber lands belong to farms, and are not in the market separately.

3. The geological structure of Michigan varies extremely, the southern peninsula being exclusively secondary in its formation, while the northern peninsula, bordering on Lake Superior, is primitive, but the portions bordering on Lake Michigan and Green bay are secondary. Primitive boulders are found in every part of the State, and there are many evidences of the land having once formed the bottom of the lakes, the waters of which have receded. The rocks of the southern peninsula consist of horizontal strata of limestones, sandstones, and shales, the limestones being generally found in the beds of the rivers near the lakes, and sandstones mostly in the interior. The upper sandstone occupies the central and more elevated portions of the peninsula. The stratum underlying the sandstone is a gray colored limestone. Associated with this rock are found calcareous spar, strontian, barytes, gypsum, &c. In localities where the carboniferous limestone exists, there are indications of the formation of bituminous coal.

The mineral resources of Michigan are chiefly confined to the northern peninsula, the copper and iron regions of which are too widely known to need detailed description here. The great copper deposits are principally located in the Keweenaw peninsula, but the beds extend along the lake from Ontonagon to Schoolcraft in greater or less quantities. The extreme length of the copper beds is said to be 135 miles, with a width varying from one to six miles, though the mineral does not exist in every portion of this extent, miles sometimes intervening with no traces of the ore. The rich deposits of iron ore are found chiefly in Marquette county, where there are literally mountains of this metal. Iron ore is also found in Delta, and to some extent in Berrien and Branch counties. Coal abounds in Jackson, and is found in limited quantity in Ingham, Bay, and other counties, but as yet has been but slightly developed. Gypsum is reported in Van Wert, Iosco, &c.; salt wells in Ingham and Van Wert; clay and lime in Jackson, Alpena, &c. Marl is also abundant in some localities. There is an abundance of timber in great variety in all sections of the State, and in several counties lumbering is an extensive business. In Gratiot county large forces of men are employed every winter in lumbering off the pine, and during the past year 8,000 to 10,000 acres have been cleared up and put in crops or in readiness for seeding in the spring. Large forests of sugar maple exist in this county, and many thousands of pounds of maple sugar are made annually. Our Alcona correspondent says that county "is almost a solid body of pine timber, interspersed with small tracts of farming lands of the best quality, covered with a heavy growth of birch and sugar maple."

4. Wheat, corn, oats, hay, potatoes, hops, &c., are grown generally throughout the State, no county or section being entirely devoted to any particular crop, though wheat is the leading product in many counties, potatoes and hay

in others, while corn, hops, pork, and wool are the money crops in some sections. Wheat and corn are largely grown in Muskegon, Berrien, Kalamazoo, Cass, Barry, Hillsdale, St. Joseph, Livingston, Van Buren, Calhoun, Kent, Gratiot, Macomb, Lapeer, Ingham, Clinton, and other counties; potatoes have been a leading crop in Mason, St. Joseph, Mackinaw, Ontonagon, Delta, Alcona, Alpena, Iosco; hay in Bay; Ontonagon, Delta, Alcona, &c.; hops in Calhoun, Van Buren, Macomb; wool in Livingston, Kent, and Clinton. Our Calhoun reporter writes:

In 1863 this county produced about 860,000 bushels of wheat, averaging nearly 15 bushels per acre, worth in round numbers $1,500,000. D. F. Curtis, living near this city, (Marshall,) harvested 40 acres of Treadwell wheat this year, which yielded 30 bushels to the acre, sold in September at $2 per bushel. It was sown on a clover sod, ploughed early with a three-horse team, thoroughly dragged and cultivated, drilled in. (This is more than double the average of our county.) Another gentleman has several acres in hops; his crop last year was about 1,100 pounds per acre, which sold at 60 cents per pound, yielding a net profit of $300, in addition to the roots sold in the spring, which, at $3 per bushel, produced nearly half as much more. The prices of both the hops and roots were high, rather speculative.

In Clinton last season our reporter says he harvested 168 bushels of wheat on seven acres of clover sod, from which the stumps had not been removed, and that a neighbor raised 500 bushels upon 18 acres; and adds that those who take pains get from 18 to 30 bushels per acre. Ingham averages 12 to 15 bushels of wheat to the acre, netting about $10 per acre. In Gratiot winter wheat on well-worked summer fallow, not molested by the midge, yields 30 to 40 bushels to the acre; spring wheat does as well in favorable seasons. In Hillsdale wheat has become a precarious crop from bad farming, and more attention is given to corn, which seldom fails, and is considered more profitable when fed out on the farm. Farmers in the lumbering regions and counties adjacent find the production of potatoes, hay, and oats the most profitable, always having a ready market for their surplus, and the crops being pretty reliable. In Iosco our reporter says they grow 300 bushels of potatoes to the acre and make a profit of $225 per acre. Our Alpena correspondent says:

Hay is worth $30 per ton, oats $1 per bushel, potatoes $1 50 per bushel. This county purchased and brought here last year, at a cost of $4 per ton, not less than 600 tons of hay, 15,000 bushels of oats, and 5,000 to 6,000 bushels of potatoes. The price paid for clearing lands is $20 to $25 per acre, which land will yield from one to two and a half tons of hay to the acre, from 20 to 50 bushels of oats, and from 100 to 200 bushels of potatoes, with good market at cash prices. Last season I had 15 acres of grass and was offered $20 per acre for it as it stood, and I think this amount can be netted from any fair acre of farming land in this county.

From St. Joseph county we have, "potatoes and peppermint oil are specialties in this county. Of the former not less than 200,000 bushels were shipped from the county last season at an average of 65 cents per bushel to the producer, and of the latter about 7,000 pounds at $4 75 per pound. Those engaged in the culture of these crops are well satisfied with the profits, potatoes being well calculated to subdue the land and leave it in good condition for laying down to grass, while peppermint leaves the land (after yielding three crops to one planting) in fine condition for wheat, our staple crop."

Hop culture is proving largely remunerative wherever engaged in, and the business is annually increasing in the State. Wool has been a prominent production in some sections, but the low prices of the past season have discouraged many farmers, and less attention is being paid to this branch, the returns of the number of sheep in the State January 1, 1868, showing a decline of 80,000 from the year preceding.

5. Of the score or more of varieties of wheat sown in the State we may name the red and white Mediterranean, white Treadwell, Soule, Diehl, midge proof, Lancaster, amber, blue stem, flint, California white, and weevil-proof, as among the most prominent. Unlike other States lying in the same latitude, Michigan raises winter wheat principally, the peculiar location of the State, almost entirely

surrounded by water, having much to do with the general exemption of winter grains from the freezing-out to which the crop in other northern States is so frequently subjected. In Berrien the Soule, Treadwell, Tuscany, blue-stem, and California are preferred, yielding from 20 to 40 bushels per acre, under good cultivation; white flint and Soule are the principal varieties sown in Bay, but are pronounced too late to escape the midge; Soule in Van Buren, Gratiot, Muskegon, and Barry; Lancaster in St. Joseph, on account of its general exemption from the attacks of the Hessian fly and the rust, which so often injure later varieties; in Hillsdale, Calhoun, Clinton, Livingston, Jackson, Lapeer, and Oakland, the white Treadwell is quite popular, and in some sections superseding the Soule, being preferred as a sure crop, the plant standing the winter better than other varieties, and doing well even when sown late in the season, and yielding 20 to 30 bushels to the acre. In some counties the preference is given to the white varieties as commanding better prices, but it is generally conceded that the red wheat is the hardiest, and hence the safest crop. Of a very superior variety of wheat grown in New Jersey, and distributed by the Department of Agriculture several years since, our St. Joseph correspondent says: "I have distributed in this and adjoining counties over 150 bushels of a variety raised from a sample received from your department, marked 'White's Bald Mediterranean wheat.' Should it maintain its present standard it will become a general favorite." The Tappahannock wheat is also becoming popular wherever known, for its early ripening qualities as well as for the large yield, and excellent quality of the flour it yields. Our Calhoun correspondent writes that the Amber is sown in greater quantity than any other variety in that county, it being early and hardy, and producing uniform crops and a sound berry, rich in flour-producing qualities. This variety is also preferred in Macomb, as less liable to rust or injury from the midge.

The sowing season extends from the 1st to the 30th of September, though the greater portion is put in from the 5th to the 20th, and harvesting is generally done from the 5th to the 20th of July, though it is sometimes commenced in some counties as early as the 1st of the month, and in others extends into August. Not more than 20 per cent. of the acreage of the State is drilled, and in some counties drilling has not been introduced. In Van Buren, Lapeer, Macomb, St. Joseph, Barry, Livingston, Cass, Jackson, Calhoun, Oakland, Kalamazoo, and a few other counties, the proportion sown broadcast is about one-half on an average. Livingston reports nine-tenths drilled and Cass three-fourths. Summer fallowing for wheat appears to be general. In Branch county our reporter says they usually summer-fallow, plough twice, and drag sufficiently to make the ground mellow. In Calhoun "three-fourths of the crop is grown on fallow, of which two-thirds is sown on clover sod, ploughed once; after cultivation with harrow and cultivator or gang-plough, the rest of the fallow being ploughed twice; one-fourth of the whole crop comes after corn or other spring crop, a moiety being sown in corn without cutting up. This corn is planted five feet apart in squares, cultivated thoroughly and put in with horse cultivator, the corn being husked off the hills about the first of September and the cattle allowed to winter in the field when covered with snow."

Our St. Joseph reporter says that the mode of culture varies among the best farmers, but they generally plough clover sod in June; some then let it lie without ploughing again, but till thoroughly with cultivator and harrow, while others plough again in August. Our Berrien correspondent writes:

> The manner of cultivation varies according to means and circumstances. My method is to plough twice from nine to eleven inches deep with three or four heavy horses, harrow thoroughly, sow from one and one-fourth to two bushels, according to size of grain, cultivate with a nine-tooth cultivator, cross-harrow with a light harrow, then roll with a heavy roller. With this treatment I usually raise heavy crops.

6. The length of season during which farm stock can feed exclusively upon pastures is reported from four to seven months, but one county naming the

former, while in a majority it is given at six to seven months, and at a cost varying from 75 cents to $2 50 per head per month. Blue-joint, June grass, and white clover, are natural to the uplands, and marsh grasses in the lowlands and marshes; while timothy, orchard grass, red-top, and the varieties of clover, are the principal cultivated grasses and which grow successfully. Pastures of clover and timothy run to June grass and blue-joint, and fields left uncultivated soon grow up in these natural grasses. In Macon, Clinton, Alcona, Bay, and other counties, cattle are pastured in the woods or on the commons at comparatively little expense.

7. Fruit culture has attracted considerable attention in Michigan, and the interest appears to be rapidly increasing, and orchards are being planted on quite an extensive scale. The influence of the lake waters surrounding the State is striking throughout the whole extent of the lower peninsula. Peaches are grown to some extent in the central counties, while in the same latitude west of Lake Michigan this fruit is seldom, if ever, brought to perfection without artificial help. This influence is also shown by the almost unfailing crops of apples in Michigan, which in this respect is excelled by no State in the Union. Peach-growing appears to occupy the attention of the people on the lake shore, especially in the St. Joseph district in the southern part of the State, considered one of the best fruit regions of the west. The portions lying within eight or ten miles of the lake offer better advantages than further inland, but the entire valley of the St. Joseph river affords a soil and climate remarkably adapted to nearly all the fruits grown in temperate latitudes. When the peach crop is destroyed in other regions, both north and south, the St. Joseph country is expected to furnish a crop of scarcely diminished excellence and abundance, and the expectation is usually realized. The apple, pear, grape, cherry, and the berry fruits are equally successful, and the production is on the increase, lands suited to their culture commanding high prices. St. Joseph county sent 1,500 barrels of apples to market in 1866, averaging $2 per barrel. In Cass county grapes have succeeded thus far, but require winter protection. The fruit crop of this county was estimated in 1865 to be equal to the wheat crop of the same year. The region around Grand Haven is also well adapted to the grape and peach, a vineyard of about three-fourths of an acre on the shore of Spring lake having yielded in 1865 about $800 worth of fruit, and an equal quantity the succeeding year. For the crop of peaches, on an orchard of 30 acres upon the same lake, $25,000 was refused in 1866. Most of the popular varieties of New York and New England fruits are equally successful in eastern Michigan, but this success is restricted to narrow limits. The eastern, northern, and most western portions of the State, which may be styled the timbered regions, are better adapted to the hardy variety of apples and pears. In the southwestern portions not adjacent to the lake, assimilating in character to the adjoining States of Indiana and Illinois, only the most hardy varieties can be relied upon.

Our Gratiot reporter thinks they can produce in his county "as fine apples as can be found in America; a neighbor weighed 11 Northern Spy apples which aggregated 10 to 11 pounds. Another neighbor had a bed of strawberries, (Wilson's Albany,) 18 by 27 feet, which yielded during five days of the last picking 68 quarts; and an Isabella grape vine, ten years old, produced, as estimated, 10 bushels of grapes." Our Oakland reporter made $900 from 150 apple trees in 1866, besides reserving all he needed for home use, but in 1867 from the same trees he realized less than $100. In Hillsdale 100 apple trees, 12 years old, occupying one and one-fourth acres, averaged 300 bushels of fruit, worth 50 cents per bushel—$120 per acre. A fruit-grower of Coldwater, in Branch county, in 1866, sold $800 worth of apples from a two-acre orchard. The variety was the Northern Spy, and sold at $1 per bushel. Apples are found a very profitable crop in Macomb, some farmers making more from their orchards

than from all the rest of their farming operations. Our reporter says the expense of cultivating and picking is 5 to 10 cents per bushel, the crop selling for 25 to 50 cents per bushel; in 1865, from 50 cents to $1.

WISCONSIN.

1. On the basis of the county returns received from Wisconsin, the average increase of the value of farm lands in the State since 1860 may be estimated at from 45 to 50 per cent., but one county reporting "no advance" since that date. Sauk county, the great hop district, shows the largest increase, our reporter stating that lands averaging $6 per acre in 1860 are now held at $35 per acre, an advance of nearly 500 per cent. Calumet, on the eastern border of Winnebago lake, reports an increase of 150 per cent.; Chippewa and Marathon, in the northern part of the State, La Crosse, in the western, and Green Lake, in the central part, 100 per cent.; Pierce, Trempeleau, 60 per cent.; Clark, Buffalo, Jackson, Washington, Brown, Outagamie, 50 per cent.; Ozaukee, 40 per cent.; Vernon, Lafayette, Rock, Walworth, Fond du Lac, 30 to 35 per cent.; Monroe, Richland, Crawford, Green, Racine, Portage, Columbia, and Marquette, 20 to 25 per cent.; Kenosha, 15 per cent.; Winnebago, 10 per cent., and St. Croix, 5 per cent.; Douglas alone reporting "no change."

2. The value of the wild or unimproved land in the State is variously returned from the several counties, running from 75 cents up to $50 per acre. In Sauk county the average is fixed at $4 50 per acre; mostly broken, stony, and barren, covered with stunted jack oaks, but capable of growing light crops of hops, corn, wheat, potatoes, &c., and in choice selections some of the hardy fruits. Columbia, $8 per acre; but little in the county, quality fair; mostly openings, sandy, with clay subsoil. Marquette, $2 50, chiefly good for pasture. Green Lake, $10; mostly timber-land and marsh. Portage, $2 to $10; embracing all grades, from rich alluvial bottom to high mountain range. Outagamie, $15; soil mostly black loam, with a substratum of stiff red clay, capable of producing all farm crops usually raised in that latitude. Calumet, $20 to $25; forest, hilly; soil very fertile. Door, $3; limestone land. Brown, $1 25 to $50; two general qualities—red clay and black muck; the former retentive of manure but inclined to bake; the latter, when well drained, very productive for ten years without manure. Fond du Lac, $10 to $50, according to capacity for natural hay or burden of timber. Washington, $30; all timber, good soil. Ozaukee, $50; timber. Racine, $16; about 30 per cent. timber; 10 per cent. prairie, and 60 per cent. marsh; the latter containing large quantities of peat. Green, $15; prairie, second-rate quality. La Fayette, $10 to $20; the former for barrens, oak openings or brush lands; much injured by drought and soil soon exhausted. Crawford, $5; rough and broken, good for grazing, wheat, oats, potatoes, &c. Richland, $3 50; rich, black muck, founded on clay and hard pan; deep soil, timber land. Vernon, $3; soil very rich. Monroe, $3; bluff land, good soil, well timbered; valley land, sandy soil; oak and pine timber. Jackson, $2 to $10; on the east side of Black river the soil is sand, sand loam, and extensive pine, tamarac, and cranberry swamps; on the west side, mostly oak land and openings, and small prairies and valleys. Trempeleau, $7; suited to grazing, wheat and corn. Buffalo, $4. Pierce, prairie and oak openings in good locations, $8; hard wood timber, $4, pine, $10. St. Croix, $7; mostly prairie; three-fourths first quality soil; one-twentieth timber. Clark, $3 to $5; hard wood timber; soil good for all small grains. Marathon, $4 for prairie, $10 to $20 for pine land. Chippewa, light prairie $3; heavy soil $5 to $8; timber, hard wood, $3; pine, $5; the county about equally divided between prairie and timber. Douglass, $1 25; within limits of land-grant railroads, $2 50; Wisconsin State lands, 75 cents to $1 25. A number of counties report

no lands under this head, except those included in farms and not in the market as wild lands.

3. Wisconsin possesses abundant timber resources, and an immense lumbering business is carried on in many of the northern and western counties, the pineries of Marathon, Chippewa, Clark, Wood, St. Croix, and other counties, furnishing many millions of feet of logs and lumber annually. Our Clark correspondent claims that 100,000,000 feet of pine timber is cut each year in that county alone; while in Monroe, 30,000,000 feet is annually cut into lumber by about 20 mills. Hard wood timber also abounds in all parts of the State, and there are few counties without sufficient wood for local uses. The lumbering business is a source of great profit to those engaged in it, and in Brown county parties boast of cutting enough white pine logs from 80 acres to net $1,200 to $1,500.

Of minerals, copper is found in Douglass, Chippewa, Richland, La Fayette, Outagamie, and other counties; iron in Chippewa, Jackson, Richland, Fond du Lac, Sauk, &c.; limestone in Richland, Rock, Fond du Lac, Brown; lead and zinc in Grant, Iowa, and La Fayette; marl and peat in Walworth, Racine, and several other localities; marble in Richland, and granite in Fond du Lac. In Douglass there are two veins of copper, as far as known, running through the county, evidently the same description of rock as is found in the upper peninsula of Michigan. There are two mines in operation near Superior. In Outagamie not much has been done in developing minerals, but some few specimens of pure copper, weighing from one to five pounds, have been found. Our La Fayette correspondent writes:

> Our county is rich in minerals. Lead, copper, and zinc abound. The great lead mines of the State are principally within this county, and their development is constant and highly remunerative in most instances. Many individuals engaged in the development of our mineral resources have realized as high as $100,000 in a season.

Peat has been worked to considerable extent in several counties. In Racine efforts have been making the past season to utilize these peat beds for fuel, and with success, as in that locality wood is scarce and correspondingly high. About 500 tons of the former have been manufactured and sold at $5 per ton, wood selling at $7 per cord. There is an abundance of peat in the county.

The agricultural resources of Wisconsin are too well known to require mention here, her rich and generous soil being suited to all the crops of the latitude, and yielding abundantly under the generally indifferent culture to which it has been subject.

4. Wheat, corn, oats, potatoes, and hay are the staple crops of Wisconsin, the first-named being the most extensively grown and by far the heaviest money crop, being made a specialty in a large majority of the counties, though it is not grown to the exclusion of other crops in any locality—as in all the northern States, a variety of crops being cultivated. In La Crosse, Monroe, Richland, Racine, Sauk, and other counties, hops are becoming an important interest, and have thus far proved highly remunerative. The almost universal complaint in reference to the wheat crop is that the yield is gradually decreasing, and as generally attributable to indifferent culture and continuous cropping. Our Walworth correspondent writes:

> I know of but one marked and general peculiarity in the cultivation of crops in this county, and that is the general effort to cheat the soil into producing the greatest possible amount of crop for the least possible amount of labor. The exceptions to this rule are increasing in number, however, as the necessity becomes more apparent. The average yield per acre for the last decade may be safely set down at 14 bushels of wheat; oats, 35; corn, 35; rye, 20; buckwheat, 10; potatoes, 75 bushels. In 1860, wheat averaged over 30 bushels per acre in this county. The greatest amount of profit during the term named has been from wheat, and from corn, oats, rye, and buckwheat in the order named. Beans and potatoes have not been cultivated to any great extent as a market crop, though for the last three years the latter crop has paid well, and its cultivation is increasing.

In Fond du Lac wheat and wool are the chief crops, our correspondent estimating the profit on the former at 50 per cent., and 35 per cent. on the latter; while in Brown wheat and hay rank first, the latter, in the spring of 1867, bringing $25 to $35 per ton. Our Door reporter says:

The most profitable crops are wheat, 25 bushels to the acre; oats, 40 bushels; peas, 40 bushels; potatoes, 130 bushels.

In Calumet wheat and rape-seed are grown as follows:

Winter wheat, 25 bushels per acre; spring wheat, 18 bushels per acre; rape-seed, 17 bushels per acre; the cost of sowing and harvesting the wheat being about the value of five bushels, and of the rape-seed, four bushels.

In Outagamie "the largest yield of winter wheat on new ground is from 45 to 50 bushels—average, 35 to 40; on old ground, 30 to 35 bushels; spring wheat, when well cultivated, 35 bushels; expenses of crop do not exceed $9 per acre, including seed."

In Sauk "hops are made a specialty, growing luxuriantly and yielding most abundantly, averaging three-fourths of a ton per acre, and selling at from 50 to 60 cents per pound. This county alone last season received for the article of hops about $3,000,000—cost of raising, about 22 cents per pound." Our Monroe correspondent estimates the profits upon this crop to be 350 per cent. on outlay of capital and labor. In Richland the profit is given at 150 per cent. Sauk is at present the great hop county, but the vines are being largely cultivated in other localities, and the great success which has attended experiments thus far must stimulate still greater attention to the crop, to which the region seems especially adapted.

The wheat crop of 1866 reached 20,307,920 bushels, or an average of 14½ bushels per acre; corn, 9,414,583 bushels, average per acre, 28 3; oats, 17,174,086 bushels, average, 33 3; potatoes, 3,940,273 bushels, average, 91 bushels; hay, 1,151,477 tons, average, 1.3 ton per acre.

5. The Scotch Fife, Canada Club, Lowland Scotch, California, Rio Grande, China Tea, Hoosac, Blue-stem, Stettin, White Missouri, Soulé, White flint, White and Red Mediterranean, Golden straw, and Siberian, are among the many varieties of spring and winter wheat sown in Wisconsin. The Club and Scotch Fife are preferred in Ozaukee, Rock, Chippewa, Winnebago, Green Lake, Kenosha, Pearce, St. Croix, Columbia, Portage, Buffalo, La Fayette, and other counties; in Rock, Green, Walworth, Monroe, and Washington, the Rio Grande is highly esteemed; the Golden Drop in La Fayette, and the China Tea wheat in Outagamie. The Club wheat is preferred on account of its large yield, while the Fife is valued for its freedom from rust and its stiffer straw. Speaking of the latter our Fond du Lac correspondent says:

It sends its roots deep into the soil; never rusts or falls; stands the extremes of weather, and yields better than either the Rio Grande or Club.

Our Ozaukee reporter writes:

The Canada Club is preferred if it can be put in the ground very early; otherwise the Fife wheat is surer and yields more abundantly, and is therefore more extensively sown, although it commands five or six cents per bushel less than the Club or Golden Drop.

From Racine:

Of spring wheat we have two classes, hard and soft—three varieties of hard, viz: Fife, Lowland Scotch, and California, the last yielding largely but making inferior flour; the other two are hardy, strong-stemmed; yield, satisfactory; flour, good. Of the soft we have seven varieties: Club, Rio Grande, China, Pearl, Mammoth Tea, White Missouri, and Siberian. All make choice flour, but only the Club and Siberian are strong enough in straw to make them desirable.

Comparatively little winter wheat has been grown in Wisconsin, but its success has been so repeatedly demonstrated in various parts of the State that the quantity raised is rapidly increasing. Our Douglass reporter says:

This is a great country for winter wheat, as it has been well tested.

While from Marathon our correspondent writes:

The only reason why farmers do not raise more winter wheat is because they do not know how well our soil and climate are adapted to it.

Of winter wheat the Mediterranean, Blue-stem, White Wabash, and Winter Club are preferred, though the Tappahannock has been received with much favor wherever introduced.

The usual time for sowing spring wheat is from the last week in March to the middle or latter part of April; and for winter, the first of September. Harvesting commences the first or second week in July with winter wheat, and extends to the middle of August with the spring grain. The general mode of culture for spring wheat is to plough in the fall, and early in the spring use the cultivator, then sow the wheat and harrow until the grain is covered. A few farmers roll their wheat soon after sowing, but the custom is dying out as the land becomes older. Our correspondent says that the first, second, and sometimes the third crops on new ground are generally spring wheat; afterwards, each alternate year following, oats or corn. Our Columbia reporter says, "The mode of culture is usually such as to get in the greatest number of acres with the least amount of labor."

6. White clover, blue joint, June grass, pony grass, wild prairie, and wild red-top are named by our reporters as the principal natural grasses; while timothy, red-top, and white and red clover are the chief cultivated grasses. The length of time during which stock can feed upon pastures alone is variously returned from as low as four months up to eight months—the former in Chippewa and Columbia, and the latter in Pearce—the average being under rather than over six months. Cost of pasture per head ranges from 25 cents to $2 00 per month; in a number of counties the expense is but trifling, stock generally grazing in the woods or upon the prairies. This is the case in Portage, Brown, Clark, Chippewa, Douglass, Marathon, Buffalo, Sauk, and other counties. Our Racine reporter says:

Close feeding for two or three years runs the prairie grass out. Indian, or June grass, and white clover follow always. On marshes and river bottoms we have three prominent varieties, viz: blue joint, wild red-top, and a long broad bladed grass. All make good hay.

7. Wisconsin cannot be considered a fruit-producing State, and a majority of our correspondents report but indifferent success in attempted culture of general varieties. In a number of counties, however, where judgment has been exercised in the selection of varieties, and care taken of the orchards, fruit-growing has proved not only practicable but profitable. From Ozaukee, on the western shore of Lake Michigan, our correspondent writes:

The apple crop does well; pears middling, being subject to blight; plums are often winter killed, and peaches are out of the question. From an experience of over 25 years in fruit raising I can recommend the following varieties of apples for cultivation: Golden Russet, Fameuse, Red Astrachan, Dominie, Northern Spy, (bears late, but does first-rate,) Pomme Grise, Seek-no-further, Rhode Island Greening, St. Lawrence. I lately ordered an assortment of the foregoing for a new orchard of 400 trees. Of pears I cannot recommend any but Flemish Beauty, Sheldon, Dearborn's Seedling, Beurre d'Amanlis, and possibly Belle Lucrative, as standard trees, while the Louise Bon de Jersey and White Doyenne do very well on quince stocks as dwarfs. If any one wishes to cultivate plums, the Golden Drop, Washington and green gage do better than any other kind, if you can keep the curculio out. Apples have never failed me entirely, and I have every year at least a few pears and plums. Apples sell here at an average of $1 to $1 50 per bushel, and pears from $3 to $6.

Hardy apples do well in Washington, and trees 15 years old yield from 16 to 24 bushels of apples, worth $1 per bushel on an average. In Fond du Lac, our correspondent says, "the capabilities for raising fruit are not the best. Apples are best adapted to the climate, but none except the golden russet, salmon sweet, Dutchess de Oldenburgh, and snow apple have as yet proved hardy. Yield for our older orchards about 100 bushels per acre; profits 100 per cent." An apple orchard at Burlington, Racine county, of 250 trees in bearing, produced the past

season 1200 bushels of fruit, which sold at an average price of 88 cents per bushel; two-thirds sold in the orchard. Our Walworth reporter writes:

Apples are fair to good. Orchards under my immediate observation, of 20 years' growth, and well cared for, in good locations, have for the past three years averaged $2 per tree, and if health and enjoyment be estimated, I should double the estimate. This is for improved fruits only, as natural fruits will not exceed half that amount, and have not proved much more hardy.

Rock, La Fayette, Green, Buffalo, Vernon, Monroe, Jackson, and other counties, report that hardy apples succeed with proper care, while in many localities wild, small fruits are found in abundance and the cultivated varieties are grown without difficulty. From Rock our reporter writes:

Capacity for fruit-growing is limited, except for apples of the most hardy varieties and small fruits, such as currants, raspberries, strawberries, &c., which do remarkably well. There are 8 or 10 varieties of apples that do as well here in all respects as in Michigan or the Middle States, and with proper attention to this fact it is hoped that this prairie country will supply its own fruit market. The Red Astrachan, Carolina, Red June, Duchess de Oldenburgh, for summer; Bailey Sweet, Haas apple, Fameuse, and Benoni, for autumn; and Rambo, Tallman Sweet, Golden Russet, Rawles' Jannetting, and Ben Davis for winter, have been thoroughly tested and prove both hardy and uniformly prolific with indifferent protection.

MINNESOTA.

1. Returns from about 25 counties of the more thickly settled portions of this highly prosperous and rapidly advancing State indicate an average increase of at least 100 per cent. in the value of farm lands in the surveyed districts, as compared with the census of 1860. The territory embracing nearly the whole upper half and a portion of the southwestern counties of the State have not yet been surveyed and put in market by the government; are uninhabited or settled only by Indians and traders, and are not of course considered in making up the average increase. No county reports an active decrease in value of farm lands, though Morrison, sparsely settled, and Cass, just coming into market, report no change in price since 1860; and Ramsey, in which the capital is located, and where lands were held very high at that date, reports little if any advance. Brown, Nicollet, and Watonwan claim an increase of 300 per cent., the first-named somewhat higher; Wabashaw, 250 per cent.; Carlton and Carver, 125 to 150 per cent.; Mower, Freeborn, and Faribault, 100 per cent.; Dodge, 70 per cent.; Rice and Washington, 50 per cent.; Houston, Winona, Le Sueur, and Scott, 25 to 33 per cent., and several others ranging from 5 to 25 per cent.

2. Vast quantities of government lands are yet unsold, and may be purchased at the minimum price of $1 25 per acre, or entered as homesteads under acts of Congress making provision therefor. In the counties which have been taken up, however, the wild or unimproved lands are held at higher figures, running from $2 per acre upwards. In Carlton such lands command $3 per acre, loamy, but in small tracts light and sandy; in general fertile, and well adapted to winter wheat, roots, all kinds of grain, (except Indian corn.) also timothy and clover. In Crow Wing $2 50 per acre; Morrison, containing public lands, $1 25 per acre; a portion first-class, others light; generally well timbered; presents rare advantages for settlement under the homestead laws. Monongalia and Wright, $5 per acre; prairie and timber, clay subsoil, soil dark, deep, and rich, capable of producing excellent wheat and small grain. Washington, $8 per acre; the southern half of the county mostly prairie of the best quality; with good cultivation it will produce 40 bushels of wheat to the acre; in the northern part the land is more broken and covered with burr oak; the soil is stiff; produces good crops of wheat and oats, grass, &c. Carver, $8 per acre; timber and meadow; soil good, capable of producing all crops suited to the latitude; several beautiful lakes in the county, affording an abundance of good fish and pure water. Scott; nearly all the unimproved land in this county is either marsh or woodland; the former at this time has but little market value, but its prospective value is great for forage purposes, it being susceptible of easy

and cheap drainage, and thus improved and sown to timothy and red-top grasses would become enduring and first-rate meadows, an important item when stock is kept up half the year; woodlands now command $15, and in the course of a decade of years will average not less than $50 per acre. Rice, $7 per acre, with land similar to that just described, timber and low land. Le Sueur, $6 to $10 per acre; land rolling, deep, sandy soil, capable of producing large crops of wheat, oats, corn, potatoes, &c., for a long series of years without manure. Nicollet, $2 50 to $10 per acre; rolling prairie, friable, black loam, with clay subsoil, will produce wheat and other cereals, &c. In Brown county a portion of the "Sioux reserve" is in the market at $1 25 per acre; rolling prairie, soil a rich, black humus, about two feet thick. Watonwan, $7 50 per acre; black, sandy loam on clay subsoil. Faribault, $3 to $6; rolling prairie; good soil. Mower, $6; level prairie; good rich soil. Freeborn, $3 50 per acre; suitable for farming or grazing. Dodge, $12 per acre; mostly good, dry, tillable prairie; balance (except a small percentage of wet peat land) timber, worth $20 per acre. Wabashaw, $12 50 per acre; rich prairie. Winona, $5 per acre; good for wheat, corn, oats, potatoes, &c. Houston, $7 per acre; soil fertile and productive, especially for wheat. There is a vast area or territory yet unsurveyed within the limits of this State, perhaps one-half of the whole State, embracing a variety of soil, resources, &c., which will be open to settlers as speedily as the demand shall require the government survey.

3. The great resources of Minnesota are to be found in her rich soil and adaptation to successful agriculture, though valuable minerals exist in several counties, and, for a prairie region, the State is well supplied with timber. In the western portion of the State there is a scarcity, but in most of the counties there is a sufficiency of timber to meet the wants of the population, while in some sections it is found in great abundance, and must prove valuable. Cass reports pine timber in quantity, now being developed. Morrison, Le Sueur, Scott, Rice, Dodge, Nicollet, Carlton, Carver, and other counties report an abundance of white, red, and other oaks, elms, bass, butternut, black walnut, poplar, sugar maple, pine, elder, hickory, &c.

Our Carver correspondent says:

> This being a timber county, with market facilities for surplus wood, clearing land is profitable, instead of an expense to the farmer. Wood on the stump is worth from 75 cents to $1 25 per cord. Good wood sells at $4 per cord.

In Scott county their oak timber is utilized for railroad ties, car and wagon stuff, &c; the several varieties of maple for furniture and sugar-making; the bass-wood for boards and dimension stuff in building; red elm for railroad ties and fencing, and the white elm for bridge and stable plank; the ash for flooring and carriage-making, and an immense number of young hickories are annually cut for hoop-poles.

Carlton county reports some gold, but not enough has been done to test the quality or whether the quartz is rich enough to pay for mining. The reporter further says:

> There is an abundance of superior slate near the St. Louis River Falls, with water privilege, second to none in the United States, close to the quarries. The tract comprising the slate country is about 26 miles long by 6 miles wide. Inducements for the development of lumber and slate will be great when the Mississippi and Lake Superior railroad shall have been built.

In Nicollet there is abundance of iron ore, but not yet developed, owing to lack of capital; iron is also found of good quality in Brown county, but is of little value, owing to the want of wood and coal to work it. Limestone of superior quality is found in Dodge, Rice, Brown, Houston, and other counties. Coal and copper appear in Nicollet; while in Brown county potter's clay of fine quality is found in beds 10 feet thick, from which two potteries are now manufacturing ware which finds ready market.

Our Scott reporter says:

Near Shakopee, our county seat, along the banks of the Minnesota river, and along the Minnesota valley railroad, is an inexhaustible bed of lime-rock, which is largely burned and marketed, chiefly in St. Paul and Minneapolis.

A fine quantity of blue limestone, for building purposes, and an immense bed of peat, are found in Ramsey county, near St. Paul.

4. Wheat is the staple crop of Minnesota, though in most counties a mixed husbandry is practiced—growing wheat, corn, rye, oats, barley, potatoes, &c. This State is emphatically a wheat-growing region, and its fresh lands and deep, rich soil yield large crops, and, with proper cultivation, the average could be kept up and even increased instead of dwindling down to the standard of the older States, as is being witnessed in Minnesota, as well as in other new States.

Our Wabashaw correspondent tells the story in few words:

On new ground the yield per acre was this year 19 bushels; but as the land becomes older the yield decreases, and on some old land the average was not more than 8 bushels per acre. Every man is anxious to raise all he can with the least expense, which is ruining the land.

In Washington county "land is frequently sown to wheat for 10 or 12 years in succession," says our reporter, "then producing 12 to 18 bushels, and when planted to corn produces nearly as much as when new. This season I had wheat on ground for the ninth year, and raised 17½ bushels per acre. Two years ago, the seventh crop was 32½ bushels per acre."

In Freeborn county "the culture is but slight, the wheat being generally sown and harvested carelessly, yet the average yield is good. The crop pays at 75 cents per bushel, considering the cheapness of land and the careless mode of cultivation."

Our Scott reporter says:

The blighting curse of western farming is, that our lands are exhausted by constantly repeating a wheat crop without manure.

In reference to the profits of wheat culture, our Washington county reporter says:

The profit varies with the skill and prudence of the farmer. At present a crop of wheat of 20 bushels to the acre can be raised and marketed for about $14 per acre, as follows: ploughing, $2; seed, 1½ bushel, at $1 50 per bushel, $2 25; sowing and harvesting, $1 25; reaping, binding and shocking, $3 25; stacking, $1 25; threshing, at 15 cents, $3; hauling to market, at 8 cents, $1 60; total, $14 60. Twenty bushels, at $1 50 per bushel, $30, leaves $15 40 for land rent, &c., per acre. Profits often exceed this. In 1865 my profit was $27 10 per acre; in 1866 it was but $14 50.

In Nicollet the average profit on wheat is returned at $10; oats and barley not as much. Le Sueur, from $9 to $12 per acre for wheat; corn about the same. In Carver "lands well cultivated will produce from 20 to 30 bushels per acre. Estimating it at 20 bushels, at $1 25 per bushel, we have $25. From this deduct cost of ploughing and putting in the seed, $3; seed, two bushels, at $1 50 per bushel, $3; harvesting and stacking, $3 50; threshing, $1 60; carting to market, $2 50; total, $13 60; and we have a net profit of $11 40 per acre."

5. Comparatively little winter wheat is sown in Minnesota, on account of its liability to freezing out through the long cold seasons of that latitude, though it is claimed by several of our correspondents that timbered lands, after being cleared, do very well with winter wheat. Of the spring wheat grown, the "Scotch Fife" variety has been the favorite, as the hardiest and surest for that soil and climate, though it is falling in favor in some localities, the "Rio Grande" yielding more and making a better quality of flour, but requiring more care in harvesting than the former, as it is subject to falling out when ripe, and the straw is also more likely to lodge. Canada Club, Black Sea, Golden Chaff, and Circassian are also sown to some extent. In Washington county "the Scotch Fife is preferred, as less likely to rust, and the straw being very stiff, it stands up well. The Canada Club makes the finest flour, but is more liable to rust and smut.

The Black Sea is a good wheat, but if not cut in season it shells badly." In Houston the Fife has deteriorated, and a variety known as the Circassian is proving successful, and is considerably sought after for seed the coming spring. In Scott the Fife is generally grown; "it makes a good stand, yields excellent flour in quality and quantity, and is never injured by smut." Spring wheat is sown during the month of April, though a small proportion is put in rather earlier, and winter varieties during the latter part of August, and first week in September. The harvesting of the former from the middle of July to the latter part of August, generally the first two weeks in August, and of the latter the third and fourth week in July.

As has been stated, the mode of culture is at best indifferent, and if not improved must result in continued deterioration of yield per acre. A large proportion of the acreage is sown broadcast, though several counties report one-eighth, one-fourth, one-half, three-fifths, and three-fourths drilled in. The general practice is to plough the land in the fall and sow broadcast as early in the spring as the frost is out of the ground, the seed being harrowed in. In some cases the ground is harrowed before and after seeding. Little or no manure is applied, the rich soil being considered inexhaustible, the decreasing annual crops failing to remove this fallacy, and the inevitable result will be the gradual diminution of the average yield until farmers appreciate the necessity of better culture.

6. The common prairie grass is the principal natural grass and furnishes the general pasture for stock. This grass when pastured closely gives way to a species called blue-joint. While clover and several varieties of red-top are reported in several counties, while the cultivated pastures are chiefly timothy, red-top, Hungarian grass and clover. Our Rice county correspondent says:

We still almost entirely use the natural grasses. Timothy and clover do well, but it will not pay to cultivate them while we have wild grasses in abundance for both hay and grazing. Native grasses furnish pasturage about five months; timothy, red-top, and clover something over six months.

Carver county:

Blue-joint grass, so called here, grows in abundance in our natural pastures; tame grass does well in the timbered land, but its culture has been neglected on account of the abundance of wild hay. At present cattle run without restraint in the summer, without cost except for care; the land is being rapidly settled, however, and the farmer must very soon provide pasturage for his stock.

In Cass county:

Farm animals feed exclusively six months in the pastures, and in mild winters they will keep in good order on the dried grasses of the meadows and a kind of rush growing in the bottoms. Blue-joint grows in the meadows, and makes excellent hay.

Brown county:

Our pastures are in the prairie, and will be for some years to come, on which we can feed thousands of head of cattle, horses and sheep. Oxen must be fed eight months in the year: other stock from five to six months.

Hungarian grass is cultivated to considerable extent in some localities, and as the country becomes more thickly settled, and the common prairie pastures taken up for cultivation, more attention will necessarily be given to other varieties of foreign grasses. The pasturing season averages about six months in length, and the cost in most of the counties is not more than the expense of salting and herding, though in a few counties from 50 cents to $1 per month is estimated. Our correspondent in Houston county says:

Considerable interest was beginning to be felt in wool-growing, but the decline in the price of wool, and the great losses resulting from lack of proper feeding last winter, have tended to discourage those engaged in this branch of business; yet I do not doubt sheep-raising will ultimately be one of the most common and profitable resources of the farmers of this part of the State. Our soil and climate are well adapted to sheep, and we have greater manufacturing facilities than any other western State; besides, we must keep some kind of stock to keep up the fertility of the soil, and no kind of stock will so well pay for feeding through our long winters as sheep.

Our Scott county reporter, speaking on this subject, says:

Sanguine hopes were entertained a few years since that Minnesota would be able to add another staple product to her industry by the introduction of sheep husbandry, but the rapid and great fall in the price of wool has rendered the enterprise decidedly a failure, and those who embarked in the business are very generally discouraged. I may say disgusted. Sheep cannot be well fed and cared for here at less than $2 a year. The price of wool this season is about 30 cents per pound, and the average clip not more than three pounds of washed wool.

7. The cultivation of fruit has not received much attention as yet, though wild small fruits grow in great abundance, and of excellent quality. Wild strawberries are found in the greatest profusion, also blackberries, whortleberries, raspberries, cranberries, currants, gooseberries, and a wild plum nearly equal to eastern cultivated plums. Large fruits have not done well as a rule where tried, though some of our correspondents report successful experiments in this line. Our Ramsey reporter writes:

No fruits do well here but grapes and small fruits. We have fine vineyard sites along the river bluffs and on our numerous lakes. Some vineyards have been started. No mildew or rot yet, and we think our soil and climate excellent for grapes.

In Rice county they have succeeded in producing all the crab varieties and some of the Russian varieties, viz: the Duchess of Oldenburg, the Fameuse, Perry Russet, &c., but without profit. Many orchards are being set out in Freeborn county, and a few growers are already raising fruit. The Red Astrachan and Duchess of Oldenburg promise well, and all varieties of Siberian crab are said to do well. Thousands of apple trees have failed in Brown county, attributed to some extent to want of judgment in selecting varieties. Our Scott reporter writes:

Attempts to raise the larger fruits in this part of the State have thus far been almost complete failures. I have been largely engaged in the enterprise, having tried 150 varieties of the apple, and so far have found but two or three that withstand the rigors of the climate. All the varieties of the Siberian crab are perfectly hardy here, come early into bearing, and yield bountifully. I have pears now coming into bearing. The varieties of apples I have found hardy on my place are the Duchess of Oldenburg, Golden Russet, and Talman's Sweet.

IOWA.

1. Returns to our circular from a majority of the counties of Iowa, embracing all sections of the State, and furnishing a fair basis for an estimate, show an average increase of about 75 per cent. in the value of farm lands since the census of 1860. Dubuque, Story, Calhoun, Marion, Delaware, Sac, Montgomery, Shelby, Chickasaw, Fayette, and Lucas report an advance of from 10 to 25 per cent. Clarke, Jackson, Des Moines, Decatur, Adams, 25 to 33 per cent. Jefferson, Black Hawk, Muscatine, Cedar, Linn, Clayton, Cherokee, and Wayne, 45 to 50 per cent. Louisa and Jasper, 75 per cent. Warren, Pottawatomie, Allamakee, Appanoose, Benton, Clinton, Palo Alto, and Marshall, 100 per cent. Crawford, Audubon, Jones, Emmett, and Winnebago, 150 per cent. Fremont 250, and Monona as high as 300 per cent. Harrison, Kossuth, Sioux, and other counties report lands "rapidly advancing," without fixing the percentage of increase.

2. Wild or unimproved lands range in price from $1 25 to $25 per acre, the former being the minimum price for public lands remaining unsold. The average value of these lands now in private hands or the property of speculators is probably $6 to $8 per acre. To indicate the general character of these unimproved lands we give extracts from letters of correspondents in different quarters of the State. In Muscatine there are unimproved lands contiguous to the county seat held at $150 to $200 per acre, while in the valley of Cedar river lands can be bought at prime cost, $1 25 per acre. The former is bluff land, covered with a dense growth of young oak and hickory timber, the soil a black loam for about six inches, lying on a subsoil of tough yellow clay, thought to be peculiarly suited to the culture of the grape in particular and nearly all fruits in general. The soil of the bottom land is a black sand, and when it does

not overflow will produce excellent crops of corn. In Clinton the average is fixed at $12 per acre, a large proportion being as good farming land as any in the State, mostly owned by non-residents. Linn county $10, prairie, all good, mostly first-rate wheat and corn land. Dubuque, $10 per acre, quite rolling, mostly covered with hazel brush, and a young growth of red and white oak timber; soil a black loam, with clay subsoil. Allamakee, $7 to $10 per acre, well adapted to the cereal and root crops; the portions too hilly for cultivation being fitted for pastures and vineyards. Chickasaw and Mitchell, $5 per acre, mostly prairie of the best quality for general farming. Winnebago $3, prairie land of good quality, but not convenient to timber, that can be purchased at a reasonable price; will produce good crops of wheat, oats, barley, and potatoes, and fair crops of corn. Kossuth is sparsely settled, and much of the land can be secured under the homestead laws, though in favorable locations land is worth $3 to $5, and rapidly advancing; the greater portion of the county is prairie, with belts of timber along the rivers and creeks. In Emmett and Palo Alto these lands are held at $2 50 to $4 per acre, principally prairie, with scarcity of timber; considerable government land still vacant. In Sioux and Cherokee, $1 25 to $5, prairie, with little timber. Sac $6 per acre, three-fourths of the county unimproved, but as good as any taken up. Calhoun and Crawford $3 per acre, land of best quality; the former contains 300,000 acres of these lands. Audubon $5, prairie, with about ten acres of timber to the quarter section; a rich alluvial soil. Harrison $5 to $10, varying from level bottom to high, rolling prairie; soil first rate, capable of producing 40 to 80 bushels of corn, 15 to 40 bushels of wheat, and other crops in proportion. Cass $2 50 to $10 per acre, prairie, good soil. Adams and Union $4, Montgomery $2 50 to $5, Fremont $2 to $8, Clarke $4 50; good tillable land, some of it of the very best quality; timber scarce. Decatur $5, northern half mostly prairie, the southern half timber; soil good, two to three feet deep, no better land for corn, oats, vegetables, &c. Wayne $3, quality good. Lucas $5; Appanoose $8, rough lands $4 to $5; timber $6 to $20; soil equal to that of lands under cultivation. Jefferson $10, chiefly prairie; some timber; the former consisting of as fine farming lands as can be found in the State. Keokuk $6, good prairie. Marion $7 50 per acre, embracing all qualities of land from best to poorest. Warren $8, light alluvial soil, adapted to growth of cereals. Jasper $8, capable of producing 60 to 100 bushels of corn, or 20 to 40 bushels of wheat to the acre. Marshall $8, good prairie. Story $5, capable of producing 60 bushels of corn, 18 bushels of wheat, or 40 bushels of oats per acre. Hamilton $4, prairie, suited to grain or stock growing. Black Hawk $10 per acre. Benton $5 to $15, prairie, best quality, said to be capable of producing 75 bushels of oats, 40 bushels of wheat, and 100 bushels of corn, when properly cultivated. Des Moines $12, and Louisa $15; quality of soil good.

3. Of the mineral resources of Iowa, coal is the most valuable and abundant, and is said to underlie an area of not less than 20,000 square miles, in all embracing a country equal to two-fifths of the whole State. The Iowa river runs near the eastern boundary of these deposits, which extend southwest into Missouri. It is upwards of 200 miles in the direction of the valley of the Des Moines across the great coal-field while westwardly it extends nearly to the Missouri river. The beds are of immense thickness, in some places said to be 100 feet or more, and lying near the surface are capable of being worked easily and at small expense. This vast bed of mineral wealth has as yet been very slightly developed, though there are inducements for working it to far greater extent than at present. Our Marion county reporter writes:

We probably have more timber land than any other county in the State, and of coal unquestionably more. There is a seven-foot vein of coal underlying nearly the whole of the county; and in the southeastern corner we have veins ten feet thick. The coal in this township will average 350 000 cubic feet to the acre.

The lead mines of the northeast, of which Dubuque is the centre, are continuous of those of Wisconsin, and are being extensively and profitably worked. Zinc occurs in the fissures along with the lead, and copper is also found in this region and along the Cedar river. Iron ore exists in considerable quantities, but is not much worked. Many portions of the State are underlaid with limestone, and building stone of several varieties exists, the Annamosa quarries, of Jones county, ranking among the best in the State. Gypsum also appears in limited quantities, and peat abounds in a number of counties, one bed in Sac county containing over 300 acres, from three to nine feet in thickness.

The great distinguishing feature of Iowa, however, is her vast and diversified prairies, and their characteristic peculiarity, the absence of timber. These natural meadows are covered with a rich coat of wild grass, forming excellent pasturage, and are not infrequently interspersed with hazel thickets and sassafras shrubs, and in the season of flowers are decorated with a brilliant garniture of honeysuckles, jessamines, wild roses and violets. Three-fourths of the county, perhaps, is of this description, yet so happily and conveniently are the streams and timber arranged that nature appears to have made an effort to distribute them in the most desirable commingling. The soil of the State is generally excellent, and probably no State in the Union has a less proportion of inferior land; and her agricultural capabilities may be inferred from the fact that in 1866 she grew one-tenth of the wheat, and about one-sixteenth of the Indian corn produced in the country, being exceeded by but two States, Illinois and Wisconsin, in the former, and four States, Illinois, Indiana, Ohio, and Kentucky, in the latter.

4. Corn, wheat, oats, and hay, are the great staples of Iowa, being grown to a greater or less extent in every county in the State, with the addition of rye, barley, buckwheat, tobacco, &c., in limited quantities. The corn crop of 1866 reached over 52,000,000 of bushels, with an acreage of upwards of 1,600,000, the crop being valued at about $23,000,000, or an average of between $14 and $15 per acre gross. The wheat crop of the same year reached nearly 16,000,000 bushels upon something less than 1,000,000 acres, the crop being estimated at about $22,000,000, or an average of about $22 to the acre, gross product. The wheat crop is the principal market product, other crops being largely worked up at home and sent abroad in more condensed form, as beef, pork, wool, &c. Our Cherokee correspondent says

Rye is not much raised, but is a profitable crop. Potatoes are also productive and much depended upon, and sugar cane is cultivated to some extent.

Hop raising is attracting considerable attention in some counties, and in Jackson and Jones they are reported as successfully and profitably grown; in Sioux they grow wild in abundance, and as large and good as any that are cultivated.

In Jones county several cheese factories have been established the past year, and dairying is becoming a prominent branch.

Our correspondents estimate the net profits of wheat culture at an average of $7 to $10 per acre. Our Sioux reporter says:

We have raised as high as 50 bushels of wheat to the acre; a field of 10 acres yielding 500 bushels of clean merchantable wheat.

Our Monona reporter writes:

Our main dependence is our immense crop of wild grass for pasture and hay used in rearing cattle, horses, and sheep. Corn and oats not unfrequently yield 75 bushels per acre, and in 1866 many fields of wheat all over our county yielded from 40 to 45 bushels per acre. Cattle, horses, and sheep, and all our crops have, for years in succession, commanded high prices.

From Marion our reporter writes as follows:

With many in this county wheat culture is a specialty, while others give much attention to grazing; but corn is king here, and is generally fed to hogs and cattle, and, indeed, to anything that will eat it. This crop is easily produced at the rate of 40 to 50 bushels per acre, and is often so managed as to produce 80 to 120 bushels per acre. I have repeatedly, in this county and in Polk county, had a yield of 110 to 113 bushels to the acre at a cost of

10 cents per bushel; and I have produced 41¼ bushels of May wheat (fall) per acre, at a cost in the bin of 34 cents per bushel, sold at $1 25 per bushel. I have also produced of spring wheat 37½ bushels at 40 cents per bushel, sold at $1 per bushel; of white rye, 35 bushels at 30 cents, sold at 75 cents; oats, 77½ bushels at 9 cents, sold at 25 to 30 cents; beef, at a cost of 2¾ cents per pound sold at six cents gross; pork, at four cents, sold at eight cents; wool at 20 cents, sold at 50 cents per pound; hay, at $2 50 per ton, sold at $5 to $10. I have raised horses at $50, when 3½ years old sold at $150. Such is not the rule, however, for the reason that farming is generally done very loosely and unskilfully, and consequently with much less profit than if well and thoroughly done.

Our Jefferson reporter says:

Corn is made a specialty in this county. One man with a good pair of horses and proper implements can cultivate in a moderately good season 40 acres, occupying his time from the 1st of March until the 1st of December, which, at an average of 40 bushels per acre, would yield 1,600 bushels, which, at 60 cents per bushel, would yield $960. Rent of land, $100; wages of man, at $20 per month, $180; board of man, at $1 50 per week, $54; board of team, at $7 per month, $63—total $397; leaving a balance in favor of the crop of $563.

5. But a small proportion of winter wheat grown, the spring varieties generally succeeding better upon the prairies, while the former is chiefly confined to the timber lands, and in most localities not cultivated to any considerable extent. Canada Club, Fife, Rio Grande, Tea, Golden Straw, Goose, Early Robinson, Hedge Row, Mammoth Spring, Black Sea, California, Arnautka, Siberian, Circassian, White Genesee, White and Red Mediterranean, White May, and Red Chaff embrace the varieties generally sown in the State, the preference being given to the Club, Fife, Tea, and Rio Grande in most localities. In Jasper the California and Siberian varieties are preferred, and in Marion the Wild Goose is highly esteemed, and in Winnebago the Golden Straw. Of winter wheat the White May and White and Red Mediterranean are the chief varieties sown.

Drilling wheat appears to be in little favor in Iowa, and is not practiced at all in most counties, the crop being generally sown broadcast from the middle of March to the middle of April, though a small proportion is put in earlier and some as late as the first of May. Winter wheat is sown the latter half of September, and early in October in some localities. The crop is principally gathered during the last two weeks in July, extending into the first week of August, depending much upon the time of sowing. In reference to the mode of cultivation a correspondent writes:

Since reading your scathing, but too true, article in the October number of the monthly report, entitled "Western wheat culture ruinous," I am loath to say anything about wheat; but must plead guilty, *guilty*, GUILTY.

Another correspondent on the western border, says:

Wheat is nearly always sown on corn stubble without removing the stalks, the ground sometimes receiving a shallow ploughing; but more is cultivated with a double shovel or common cultivator; others sow the seed and harrow in. The largest crops of wheat ever raised in Monona county have been cultivated upon the latter plan, many of them yielding 45 bushels to the acre. With all of these plans of seeding the ground is well rolled.

Our Lucas reporter says:

We plough for wheat four or five inches deep, sow broadcast, harrow twice, and then let alone till harvest.

In Jefferson county, "The best mode of culture for spring wheat is to plough the previous fall, and shallow ploughing is preferable; for fall wheat the ground should be ploughed deep in June and reploughed before sowing, that the wheat may take deep root, thus securing it against the drying winds of winter and the frosts of March." Ploughing is generally done in the fall, and sometimes reported in the spring. In 1866 the average yield of wheat per acre in Iowa was 16 bushels.

6. Wild prairie grasses, blue joint, white clover, wild red top, marsh and slough grass, sedge, wild pea or vetch, and buffalo grass are the principal natural grasses of Iowa, while timothy, red clover, red top, and other tame varieties are cultivated with success. Our Jefferson correspondent says;

After prairie grass the varieties most natural to our pastures are blue grass and white clover; they seem indigenous to our soil and climate, and wherever the prairie grass is eaten out they appear without sowing.

In Monona county they have a variety of wild grass called tassel or broad top grass, covering thousands of acres, and yielding five tons of hay to the acre, claimed to be equal to timothy or clover for wintering cattle. In many counties the wild grasses of the prairies furnish the pastures for stock, and animals subsist upon the range during five or six months of the year, at the expense only of herding and salting. Cultivated grasses will generally extend the season during which stock may subsist entirely upon pastures, one to two months, at an expense of from $1 to $2 per head per month. Our Decatur reporter says:

This county excels in timothy and clover; pastures 15 to 20 years old yield from two to two and a half tons of hay to the acre without manure. Cattle can feed on pastures eight months of the year.

In Linn county stock subsist on the prairie grass exclusively six months and timothy seven months, the cost of the former nothing but herding and salt, the latter $1 to $2 per month. In the northwestern they have no cultivated grasses but an abundance of wild grasses of the best quality, upon which farm animals feed seven months of the year, at an expense of about $3 per head for the season.

7. Fruit culture is yet in its infancy in Iowa, and owing to want of judgment in the selection of varieties of the large fruits and the proper care of the young trees, experiments have not been universally successful, yet results have satisfactorily demonstrated that hardy fruits may be grown successfully and profitably in every section of the State. Our Marion reporter writes:

The capabilities of this county for apple and grape culture of the hardy varieties are absolutely unlimited. In common with other parts of the State we produce as fine specimens of Red June, Early Harvest, Sweet June, Summer Sweet, William's Favorite, Red Astrachan, Dyer, Lowell, Belle de Harvest, Golden Sweet, Coles's Quince, Jannetting, White Winter Pearmain, Wine Sap, Fameuse, &c., &c., as I have ever seen in any country. There are parties in this county who have sold thousands of dollars worth of apples the past season at $1 50 per bushel. The Concord is *the* grape for this county for general cultivation, perfectly hardy, very prolific, fruits early, and is as nearly every way right as any thing can well be of its kind—as a grape for the million. The Hartford Prolific, Creveling, a few of Roger's Hybrids, the Delaware, the Diana, the Black Hamburg, &c., are cultivated in the gardens, but the Concord in garden and in field, in quanties. Grapes sell readily at 10 to 15 cents per pound, and there are parties here who have realized $300 per acre for Concords the past season. Pears and cherries are cultivated in a small way; peaches a failure; but small fruits, berries, &c., do well.

Jefferson county reports that locality well adapted to fruit culture, several varieties of apples doing well and making a profitable crop, the trees being planted much closer than in the east or south. Pears also do well, and grapes are a sure and highly remunerative crop; as per the following statement of our reporter: On one acre, 1,300 roots at 10 cents, $130; sub-soiling with plough, $25; planting, $15; trellising, $100; total cost, $270; average yield of each vine, 5 pounds, 6,500 pounds at 10 cents, $650; leaving a profit of $380 for the first crop.

In Jasper many farmers, with orchards planted ten years ago, have plenty of fruit, and are selling their apples at $2 per bushel; grapes sell at 20 to 25 cents per pound. In Mitchell, on the northern border, hardy apples, pears, cherries and plums do well; a few grapes flourish; orchards are yet young; one garden of 30 apple trees, yielded as many bushels as trees; strawberries, raspberries, currants, &c., grow nicely. Keokuk county, one apple orchard of 300 trees, last year produced 1,200 bushels, which sold, in the orchard, at $1 25 per bushel. Marshall, some varieties of apples and pears do well; most orchards not yet in bearing; small fruits and berries yield immensely; one acre of Concord grapes, three years old, yielded $1,000 worth of fruit, at 20 cents per pound; five and one half rods of Wilson strawberries yielded 135 quarts, at 30 cents, $40 50. In Clinton county, an orchard of 300 apple trees, ten years set, in 1866, produced 900 bushels of fruit; sold in the orchard at $1 50 per bushel, in 1867, produced 500 bushels, sold at $1 25 per bushel. The apples

that do well in Jackson, are the Bellflower, Jannetting, Spitzenburg, Tompkins county, Pound-sweet, Black Detroit, Fall Rambo, and Russet.

Mr. Suel Foster, a pomologist, of Muscatine, writes that nearly all the fruits of the latitude, except the peach, succeed well. Apples yield as much as in any country, and the fruit is large, fair and highly colored. He thinks pasturing the orchards with hogs will destroy many of the insects infesting the trees, especially the codling moth. Of grapes he prefers the Concord, for profit, as it will yield seven to eight tons of very perfect fruit to the acre, he having gathered seven tons to the acre the past year, worth in the market from 7 to 10 cents per pound.

Our Des Moines reporter writes as follows:

When I first came here it was voted, unanimously, that this was no fruit country. Itinerants from the east traversed the country and took orders for trees, but with decided loss to the purchasers. After local nurseries were started a decided change was wrought in the minds of the people, and now this county has become famous for fruit growing, and many thousands of dollars are annually realized from the enterprise. As to profits: one of my neighbors has an orchard of about ten acres, and last year he sold from one acre (probably the last) $150 worth of apples.

NEBRASKA.

1. Our returns from Nebraska are chiefly from counties bordering upon or adjacent to the Missouri river, or upon the Kansas border, with a few of the interior counties, and basing an estimate upon the figures from these localities, the settled portions of the State show an increase in the value of farm lands of from 150 to 175 per cent. since 1860. Dodge county reports an advance of 400 per cent.; Burt and Gage, 200 per cent.; Dixon, Dakota, Otoe, 100 per cent.; Cass, Richardson, Pawnee, 50 per cent.; Merrick, 33 per cent. In a number of counties the settlements have been made since 1860, when the farms were bought at $1 25 per acre, or entered under the homestead laws. Such is the case with Jefferson, where there are now farms held as high as $15 per acre. In Hall county, in the interior, farms of 160 acres which could be purchased in 1860 for from $300 to $400, now command from $1,500 to $4,000, according to improvements and distance from railroad stations.

2. The value of wild or unimproved lands ranges from the government minimum price of $1 25 up to $10 per acre. In Dixon, choice locations on prairie, $3 per acre, very fertile, well watered, capabilities good; Dakota, $3 to $7 per acre; Burt, $5 to $6 per acre, excellent farming land; Dodge, $4 per acre; Cass, $3 to $10 per acre; for lands lying 5 to 15 miles from the Missouri river, gently rolling, well watered, and unsurpassed in fertility; but little government land in the county; Otoe, $5 per acre, on the average, mostly prairie, except along the streams, gently undulating, with no abrupt bluffs or hills, except when it takes its first rise from the Missouri river, and with this exception is all capable of cultivation; Richardson, $4 per acre, deep, rich, sandy loam; Pawnee, $2 to $10 per acre, soil black muck or loam, with clay sub-soil, very rich, producing wheat, corn, and oats; Gage, $2 per acre, chiefly prairie, timber lands generally being taken up by settlers; Jones, $2 to $5, mostly prairie, good timber as high as $5 per acre; Merrick, $3 per acre, level prairie, quality good, will produce all kinds of grain and roots; Buffalo, $1 50 per acre; Hall, $2 50 per acre, nearly all level prairie, rather sandy but rich, and produces well all the crops suited to the latitude. There are millions of acres of the best prairie lands in the State to be purchased at government prices, or subject to entry under the provisions of the homestead acts, but a small proportion of the State having been taken up by settlers or speculators. In 1860 there were over 48,000,000 acres of wild or waste areas in Nebraska, against less than 700,000 acres included in farms.

Sorghum has been successfully grown in some sections of the State.

3. The great resources of Nebraska are to be found in her deep rich soil and

agricultural capabilities; timber being comparatively scarce, and minerals not generally abundant, so far as yet developed. The timber is mostly confined to the banks of the streams, and commands high prices, and farmers are wisely engaging in the culture of forest trees for the wants of the future. Our correspondent reports a vast deposit of iron ore in Gage county, of good quality, the vein commencing near the surface of the ground and running very deep. Iron ore is also reported in Dixon and other counties. Coal is found in various sections, but has been but slightly developed. It is found in Richardson at a depth of 20 feet, while in Pawnee it crops out of the bluffs along the ravines. Deposits exist also in Jones, Dixon, Cass, and other counties along the Missouri, worthy of attention. Rock and sandstone, for building purposes, abound in various localities, supplying, to some extent, the want of timber. Limestone is also found in several counties. Our Jefferson reporter says:

We have a mineral white clay here which we think is valuable for pottery. It is used also for paint, and seems to answer every purpose of white lead. We also have a stone-colored clay, peculiar for its toughness and hardness when burned.

4. Wheat, corn, oats and potatoes are the principal crops grown in Nebraska, though various others are successfully cultivated to more limited extent. Our Hall reporter writes that wheat, oats, barley, corn, potatoes and peas are produced in that county, with an average yield as follows: wheat, 25 bushels to the acre, worth $2 per bushel; oats, 50 bushels, at 80 cents; barley, 40 bushels, at $1 25; corn, 40 bushels, at $1; potatoes, 100 bushels, at $2; peas, 30 bushels, at $3 per bushel. As an extraordinary crop he names 45 bushels of wheat, 70 bushels of oats, 45 bushels of barley, 80 bushels of corn, and 250 bushels of potatoes. In Pawnee, Richardson, Otoe, and several other counties Indian corn is made a specialty; in the first named, yielding about 50 bushels to the acre; and in Richardson, from 50 to 75 bushels, never failing, and largely fed to hogs. Wheat is the chief crop in Dakota and Dixon, in the latter yielding about 25 bushels per acre, worth $2 per bushel; profit, 100 per cent. In Dodge county, last season, the crops averaged as follows: corn, 35 bushels, worth 90 cents; oats, 50 to 60 bushels, 55 cents; wheat, 18 bushels, $1 25 to $1 40. In Jefferson they raise as high as 35 bushels of wheat to the acre; corn, from 25 to 60—the former worth $1 25, the latter 60 cents per bushel. Our Cass reporter writes:

Corn, wheat and oats are the staple crops of this county. A man and team, with the improved farm machinery, can easily cultivate seventy acres of corn, wheat and oats, and do it well, with the addition of a little help in harvest time.

Sorghum has been successfully grown in some sections.

5. Canada Club, Rio Grande, Scotch Fife, China Tea, Golden Drop, May, Blue Stem, Mediterranean and Black Sea are the principal kinds of wheat grown in Nebraska, the spring varieties forming a large proportion of the whole crop. The China Tea, Canada Club, Scotch Fife and Rio Grande appear to be equally popular and esteemed for hardiness, yield and value in market, making superior quality of flour. The Fife is given the preference in some localities as less liable to rust and injury from insects, and also for its greater productiveness. Winter wheat is sown in September, and the spring seeding is done from the middle of March to the middle of April; the harvest commences the early part of July and continues up to the first of August. Drilling has been scarcely introduced as yet, but the system is meeting favor, and will soon be more generally adopted. The mode of culture is very simple, and promises to exhaust the land as rapidly as settlers of other new States have been able to accomplish the work, even though the rich soil of Nebraska may now appear almost inexhaustible. The general practice is to plough the ground in the fall, and harrow in the seed in the spring, though better culture is given in many instances. Our Hall reporter writes:

All lands intended for wheat are ploughed in the autumn as early as possible, and well manured, if it can be done. In the spring, as early as the frost is out of the ground, we

sow, harrow twice or three times, according to the condition of the land, and if not too wet roll it once. If the spring is favorable we sow one and one-quarter bushels to the acre; if a very dry season, one and one-half bushels.

6. Common wild prairie grass, blue-joint, buffalo grass, red-top and wild timothy, with some white clover, supply the pastures of Nebraska. Kentucky blue grass and clover do well wherever cultivated, but the prairies are chiefly relied upon for the subsistence of stock during the pasturing season, which is reported to range from five to nine months in length. Otoe reports five months as the season upon which stock can feed exclusively in pastures; Dixon, Dodge, Hall, and Burt, six months; Cass, Gage, and Jefferson, seven months; Richardson, Pawnee, and Jones, eight to nine months; and Merrick runs up to 10 months, our correspondent claiming that stock will live the whole year on pastures in case not much snow falls in winter. The expense of pasturing stock during this season is generally the cost of salt and herding—the highest estimate being $2 50 per head for the season, and the lowest "nothing."

7. There is an abundance of wild small fruits, such as plums, grapes, raspberries, strawberries, gooseberries, &c., but little has yet been done to test the capabilities for large fruits. Our Dixon reporter writes:

This county is not suited to the growth of apples, peaches, or pears, as they get badly winter-killed, and do not grow natural or wild, but plums, gooseberries, currants, cherries, mulberries, raspberries, walnuts, grapes, &c., grow wild and profusely. A family will frequently make 100 gallons of pure wine in a season. I have made 20 gallons for my own use, gathering the grapes in two days. The wine sells at from 50 cents to $2 per gallon. There is no grafted fruit cultivated here; those who have tried the experiment have failed.

Hardy apples may generally be cultivated with proper selections of varieties and care of trees. In Otoe county, according to our correspondent—

Fruits that succeed in the north do well. The hardier apples grow and bear well, while pears are a complete success. Peaches will yield an occasional crop, when the trees are grown in the sod, so as to check the growth of the tree and render it hardy. The small fruits all do well, except the Lawton blackberry and the raspberries, which propagate from suckers, as they badly winter-kill unless thoroughly protected.

Our Dodge reporter says the hardiest fruits must be selected to prove successful, and advises the raising of seedlings, which he finds perfectly hardy.

Hall county:

Capabilities for raising fruit not very good. Apples and pears will not do well; I have tried it for the last 10 years without success, although I claim to understand it. Of 12 varieties of cherries, only one kind (the Early Richmond) did well. Plums do well; also grapes, that is the Concord and Delaware, but no tender varieties.

KANSAS.

1. From the returns at hand we may fairly estimate the advance in price of farm lands in the settled counties of Kansas at not less than 150 per cent. as compared with the census values of 1860, the lowest estimate being 25 per cent. for Nemaha, and the highest 500 per cent. for Marshall, Washington and Saline. Pottawatomie and Butler report 300 per cent. advance; Marion 200 per cent.; Linn, Johnson, Doniphan, Clay, Chase, Osage, and Woodson, 100 per cent.; Jackson and Franklin, 80 to 85 per cent.; Allen, Miami, Wyandotte, and Leavenworth, 40 to 50 per cent. In Linn county the location of the main trunk line railroad from the northern lakes to the Gulf of Mexico, our correspondent says, has advanced the price of lands generally 20 per cent. within the last few months. In Marshall, farm lands purchased at government prices in 1860 now sell at from $5 to $20 per acre, according to the quantity under cultivation, and the real estate value of the county is claimed to be at least five times that of 1860, and the same facts are true of Washington and Saline, the Union Pacific railroad (E. D.) running for 30 miles through the county. Bourbon reports an increase of from $2 to $10 per acre.

2. Unimproved or wild lands are held at figures ranging from the government price for public lands up to $10 per acre. In Bourbon the average is

reported at $3 50 per acre—soil, rich black loam, averaging 2½ feet deep, adapted to the growth of all kinds of grain raised in the northern States. Allen county, $5 per acre, entirely prairie, the timber land being all located and worth $25 per acre. Linn county, $4 to $8 for prairie, $8 to $20 for timber—principally in the western part of the county, and quality up to the average of the country. Miami, $3 to $15 per acre; the prairies are undulating and classed as bottom, second bottom, high prairie and mounds, and are generally susceptible of the highest cultivation. Franklin, $3 per acre; prairie, some of excellent quality, but distant from timber and water; other land stony and bluff, fit only for pasture. Johnson, about $6 per acre, soil mostly a black loam, 15 to 24 inches deep, resting on a yellow clay subsoil. Wyandotte, $10 per acre. Our correspondent says:

> This county is located between the Missouri and Kansas rivers, and is the best timbered in the State. The Missouri Pacific railroad and the Union Pacific railroad (E. D.) pass through the county in such a manner that no part of the county is more than ten miles from one of the roads; while the cities of Leavenworth and Kansas City are distant but 15 miles from the centre of the county, giving a good market for everything our farmers may raise, whether grain, vegetables, fruit, or stock. The land is unsurpassed in fertility; about one-half the county is heavily timbered, the remainder prairie. The prairie portion is in the Delaware reserve, and has been recently purchased from them, and is now in the market.

Leavenworth, $6 per acre, generally rolling prairies, belted at regular intervals of one to one and a half mile with oak, walnut, hickory, elm, cottonwood, and pine timber; soil a deep, rich, sandy vegetable mould, capable of yielding enormous crops of corn, pasturage, all the cereals, grass, fruits, &c., suited to the latitude. Jackson, about $5 per acre, very productive, undulated prairie and alluvial creek bottoms; streams skirted with timber. Doniphan, $3 to $15, soil superior, adapted to all small grains, especially for hemp and corn, also for root crops. Nemaha, $4; high, rolling prairie, capable of producing all kinds of grains and fruits suited to that locality. Pottawatomie, $5; sandy loam, adapted to all kinds of grain. Marshall, $5; mostly rolling prairie; splendid wheat land. Washington, $1 25 to $5; black loam, suited to cultivation of corn, wheat, oats, barley, &c. Clay, $3; bottom lands principally suited to cultivation; uplands have a rich soil and in wet seasons are preferable to the bottoms for small grains, but are chiefly used for grazing, affording an abundance of grass and unlimited range—well fitted for stock-raising. Saline, $2 50; common prairie, bottom and upland. Marion, $3; good bottom or table lands, with plenty of water, timber rather scarce, but plenty of good rock, both lime and building stone; lands of first quality. Butler, bottom lands $5; mostly in the hands of settlers; the high or ridge lands are owned by speculators, the old settlers thinking them almost worthless. Chase, $3; valley and upland prairie, clay intermixed with sand and vegetable matter, producing the cereals and root crops without artificial manure. Osage, from $1 up to $20; average $3 50, consisting of timber lands with running water, second bottom or middle lands, second bottom prairie with running or standing water, upland prairie with ravines and buffalo wallow or thin clay lands. Woodson, $2 to $6; minimum price of school lands $3 per acre; rich sandy, rolling prairie, capable of producing two tons of wild grass to the acre, 37½ bushels of oats, and 22 bushels of wheat. There is still a vast area of public lands in Kansas held at government prices, the amount in 1860 reaching 50,265,130 acres, against less than 2,000,000 acres taken up in farms.

3. Coal is found in Bourbon, Allen, Linn, Miami, Franklin, Leavenworth, Jackson, Doniphan, Nemaha, Pottawatomie, Washington, Clay, Osage, Woodson, and other counties, and in some districts in great abundance, though as yet has been but slightly developed. In Bourbon coal underlies the whole extent of the county, the veins varying in thickness from 18 inches to 4 feet, cropping out on the surface in many places, and said to be of the best quality. In Allen

and Linn counties the veins are from 2 to 6 feet thick, awaiting development. Our Osage reporter says :

A seam of coal averaging about 20 inches in thickness extends from the northeast to the southwest corners of our county, about 30 miles, and from 2 to 4 miles in breadth. It crops out in a thousand points, and is worked in at least one hundred places. It is worth $5 per ton delivered at Burlingame.

A similar vein crops out at various points across the county of Woodson. Limestone and several varieties of building stone abound in many counties, supplying a cheap and valuable substitute for timber in fencing and building purposes. In this connection our Miami correspondent writes as follows :

We have excellent stones for fencing and building, and they are so placed in the mounds that they occupy but little space, yet they are upon or near every quarter section, and can be seen at a distance as they project from the top of the mound. These stones are of about the right size and thickness to make a very nice and durable wall or fence, and are easily hauled down hill over the smooth surface of the prairie. These fences, when built of the white and gray limestone and brown sandstone, are in beautiful contrast to the rich dark-green verdure of these lands. I have on my Stonewall farm 1,700 rods of fence, mostly of limestone, built within the past seven years, with my own hands.

Our Leavenworth correspondent says :

We have a soft sand rock which hardens on exposure to the air, very light, porous, and strong enough for building purposes, and makes the dryest house ever built, consequently the warmest in winter, and pre-eminently the healthiest dwelling known. I have tested this rock, and speak of what I know. Very little is yet known of its valuable qualities, but in time they will be appreciated. Fences can be made of rare excellence, and at reasonable prices, that will endure and harden for ages.

Building stone is abundant in Chase, Marshall, Pottawatomie, Osage, Woodson, and various other counties, the varieties found in Woodson being of a beautiful white texture, capable of a fine, smooth polish, and is suitable for tables, mantels, tomb-stones, &c., and so perfectly stratified as not to vary one-fourth of an inch in thickness in blocks 10 by 12 feet square, and these strata range from 2 to 18 inches in thickness. The supply is said to be almost unlimited. In Bourbon a species of black marble abounds, easy of access, and claimed to be equal to the best Italian marble. Lead is found in Linn and Bourbon; salt in Pottawatomie, Miami, Doniphan, Saline, &c.; feldspar in Washington; gypsum in Marshall and Saline. Gold is reported in Pottawatomie, but extent not developed.

There is much superior hard-wood timber in Kansas, but generally there is little more than is required for local uses, while in some counties there is a positive dearth of wood, though in such localities forest trees may be rapidly grown, and their culture is being encouraged by the legislature of the State. Our Allen county correspondent reports the finest quality of black walnut, oak, hickory, hackberry, &c., many of which will make 4,000 feet of inch lumber. Wyandotte claims to be the best timbered county in the State, and under the demand for wood, land selling for $40 per acre is paid for by the wood alone. The bottoms of the Missouri and Kansas valley produce immense quantities of the yellow cottonwood timber for fencing and common building purposes, selling at $15 to $20 per thousand.

4. Corn, wheat, oats, potatoes, and hay are the crops of general cultivation, the first-named being the great staple product—the crops of 1866 being estimated as follows : Corn, 6,527,368 bushels ; wheat, 260,465 bushels ; oats, 200,316 bushels ; potatoes, 243,514 bushels ; buckwheat, 20,402 bushels ; barley, 7,255 bushels ; rye, 4,548 bushels ; hay, 123,082 tons ; tobacco, 22,263 pounds. More attention is being given to wheat, and as the soil and climate are entirely favorable to this culture, there will not long exist so great a disparity between the total amounts of the two leading crops. Corn has been

more largely grown in some sections because readily turned to money by selling at government posts, &c. Our Doniphan reporter says:

Corn, hemp, and potatoes are the principal crops in this county, but wheat, oats, and barley do well. An average corn crop is from 40 to 50 bushels per acre, but frequently 75 to 80 bushels are raised under fair cultivation. Our corn is mostly put into beef and pork, and thus made profitable at present prices.

Another correspondent in this county says:

Corn has this year averaged 60 bushels per acre, and this is about an average year for the crop. A few years since I raised 83½ bushels to the acre and sold the crop for 50 cents per bushel, but this was an extra yield.

In Jackson, stock raising is considered the most profitable branch of farming operations. Our Saline reporter writes:

Corn is the principal crop as yet, because most profitable, there being no good mills for making flour. Our country is better for wheat, rye, oats, and barley.

In Marshall "it is not uncommon for persons here to take wild land and pay for breaking and fencing and the price of the land from the first crop." Hops, castor beans and flaxseed have been successfully cultivated in Johnson county, and our reporter thinks the crops will be trebled the coming season. From Franklin our reporter writes:

Corn, wheat, potatoes, and Hungarian grass are the principal crops. Cotton, of fine texture, was cultivated to some extent during the year. The great detriment to the productiveness of our county is skimming the surface. Deep ploughing is the only remedy against drought. In 1860, the "dry year," I raised 300 bushels of corn. I ploughed my corn as in ordinary years; some persons thought this labor lost. Winter came, and this class of persons had no corn, but received "aid" which the charity of other States sent to Kansas.

Sorghum is a valuable and sure crop, but is not largely cultivated. In Wyandotte and Leavenworth vegetables and fruits are largely grown, and find a ready market.

5. Both spring and winter wheat are cultivated in Kansas, preference being given to each in different localities. The Club, Fife, Rio Grande, Tea, Red and White Mediterranean, Red and White May, Walker, and Blue Stem are the principal varieties sown. Spring varieties are more generally cultivated in Marshall, Saline, Doniphan, Pottawotomie, Nemaha, Clay, and Washington counties, but in several of them the preference for winter wheat is gradually increasing. Mediterranean and May varieties are preferred in Wyandotte, Johnson, Leavenworth, Miami, Franklin, Chase, Woodson, Linn, Jackson, and other counties; the May wheat for its early ripening and freedom from rust and chintz bugs, though it is not so productive as some other kinds; the Mediterranean for its hardiness and productiveness. The Blue Stem is sown in Pottawatomie, the Walker in Allen; while of spring varieties, the Club, Fife, Rio Grande, and Tea are all highly esteemed and successfully cultivated.

Winter wheat is generally sown from the middle of September to the first week in October; spring varieties during the month of March; while the harvest commences the latter part of June and extends to the middle of July for the spring-sown crop. A very small proportion of the acreage is drilled, in many counties none at all, though our reporters anticipate the early adoption of the drilling system. As in all the new States, the culture of wheat in Kansas is upon the principle that the soil is inexhaustible and requires little assistance from the farmer for the production of a full crop. In Marshall they often harrow in wheat without ploughing, upon ground that has been used for corn, and our correspondent says:

If land has been broken in the fall, we harrow in the wheat in March, and get a good crop. If farmers would take more pains, this county would excel in wheat production.

In Clay county the ground is ploughed, sown broadcast, and harrowed, and the harvest awaited. Our Miami reporter writes:

The crop, when sown broadcast and harrowed in, is 15 to 25 bushels to the acre, but we have raised from 20 to 45 bushels by sowing one and a half bushels, and putting it in with double shovel, or with a drill.

In Osage some plough and sow and harrow in, some sow and plough in, and others plough and drill in—rolling generally following. In Woodson "the mode of culture is careless, slovenly ploughing, and equally slovenly dragging over with an A harrow. Drilling is being rapidly adopted in this county, and is believed to pay 30 per cent. in the yield." In Linn the most approved method is to put in seed with cultivator, or drill upon the previous year's corn ground, ploughed in July, though the greater portion is covered with harrow. Our Wyandotte correspondent writes as follows:

We do not as yet pay that attention which we ought to improved farming, yet the yield will average 30 bushels per acre, and the wheat is inferior to none grown in the United States, being of the grade of which the best St. Louis flour is made.

6. In most of the counties the cost of pasturing stock does not exceed the cost of salt and herdsmen, cattle generally subsisting upon the wild grasses of the prairie from 7 to 10 months, and in some localities little feeding is necessary during the whole year; but where foddered during the winter the estimated cost ranges from $3 to $8 only per head. A correspondent writes:

There are no fields kept exclusively for pasture. The nutritious properties of the prairie grasses are manifest in the fall season by our stock cattle being as fat as eastern stall-fed cattle. The cost per head in the summer months is a mere trifle, as cattle herd together and need but occasional salting. In winter we feed prairie hay, Hungarian grass, and fodder, at a cost not exceeding $5 per head, and hundreds are wintered through on much less.

In Allen county thousands of horses and cattle live on the prairies the year round without feed. Our Butler reporter says:

Our prairie grass is of much better quality than that of Illinois or Iowa; our cattle dealers say there is more fat in it. I have been in the county ten years, and never fed three months any winter until the last, when we had to feed until April. Cattle and horses do well on the prairie nine months of the year; the range is unlimited and free, the only expense being for salt and herding. Salt is worth $6 per barrel; one good hand will herd 300 head; wages, $25 per month; board, $12, use of horse, $15; so that herding 300 head costs from $50 to $60 per month.

Buffalo grass, swail grass, red top, Gramma, blue-stem and wild rye abound, the latter furnishing valuable winter range in the timbered lands. The Gramma is regarded one of the best fall and winter grasses for stock. Kentucky blue grass, timothy, clover, and Hungarian grass are cultivated with success, though not very extensively as yet, owing to the abundance of natural grasses. Our Leavenworth correspondent says:

Blue grass lasts all the year round, when snow is not on the ground. Pastures permitted to grow unmolested during the summer yield fine feed in midwinter, and in early spring turn green, and are of surpassing quality in March and April. When the wild pasture is good it is as good as timothy, though timothy hay brings $10 when prairie is $8 per ton.

7. Our reporters in all sections of the State speak favorably and confidently of the capabilities of Kansas in fruit production, though in many counties the orchards are too young to return profits as yet, but are rapidly coming into bearing. All the fruits suited to the latitude are successfully grown. A few extracts from the letters of our reporters will exhibit the capabilities and prospects of the State in this regard. Our Leavenworth correspondent writes as follows:

The cultivation of fruit is very general, though yet in its infancy. Every variety of fruit suited to the latitude has been produced, and of most excellent quality, exceeding in size, beauty, and perfection those grown in New York and New Jersey. Of apples, I have raised on my grounds the finest specimens of fall pippin, rambo, tulpehocken, lady apple, Vandevere pippin, northern spy, Newark pippin, jannetting, summer, fall and winter pearmains, &c., &c., and the yield has been good, and the trees healthy. I have marketed the peaches on two acres of ground at $493 in a single season. Cherries are subject to summer blight, and, except the Kentish red of Pennsylvania and New Jersey, unworthy of further trial. The old Morello cherry is healthy here, but poor in quality. Grapes are a success, and from my limited experience exceedingly profitable, the fruit selling at from 10 to 30 cents per pound. Pears, dwarf especially, are raised of great beauty and flavor. Strawberries and Lawton blackberries also grow to perfection.

Our Jackson reporter says:

The capabilities of our county are most excellent for all fruits raised in this latitude. The grape grows superbly. Our orchards are young, but every man who has an orchard is making it pay; apples and peaches selling at from $1 to $2 per bushel in the orchard, and grapes from 15 to 25 cents per pound.

Woodson county:

There is not an acre of dry land in our county that is not adapted to fruit culture. The peach is peculiarly adapted to our soil and climate, and the crop has not failed since 1860. Grapes do well, and are not subject to the blight or mildew. Apples are only beginning to bear. Pears succeed as far as tried.

Pottawatomie:

The large fruits promise well. Grapes indicate exceedingly fine results. Apples and peaches are worth $2 50 per bushel; grapes, 25 to 35 cents per pound.

Bourbon:

Fruits of all kinds do well. Peaches bear in three years from the seed; apples from six to seven years.

Peaches are sometimes winter-killed, but seldom prove entire failures. Our Miami reporter says they are saved from early frosts by winter mulching. Our Wyandotte correspondent thinks there is no better fruit region in the United States than in that county. He reports an orchard that has not failed in six years to yield an abundant crop; the apples selling in the orchard at $1 25 per bushel, and yielding from $700 to $900 each year. "All the grapes tried succeed, except the Catawba. In Franklin, the Catawba and Isabella have been blighted in many localities during the past three years, but the Concord and Clinton do well." In Osage, "apples do well, and grow large and luscious, but need a wind-break; while peaches do well one year in five; grapes succeed finely, as do all small fruits, except currants, which need shade."

Our Marshall reporter writes:

But little attention has been paid to fruit culture here, but it is believed that all the hardy fruits will do well. If some one would come and start a nursery here in the Blue valley he would have many customers. Nothing of the kind exists in all this valley.

ARE OUR WINTERS BECOMING COLDER?

People are proverbially forgetful of facts in weather experience. It is intimated in public prints that the winters of central United States are gradually becoming colder, and a possibility of an approaching cycle of Arctic cold is hinted. That the public fear of such a climatic misfortune may not become intensified, the following facts from Niles's Register are given:

The Charlestown, Virginia Free Press, of the 8th of January, 1835, says, that on the 5th of that month everything in a fluid or damp state about the office became congealed; that water poured on the form was instantly converted into a cake of ice, and the paper which was worked off on one side had the appearance of a huge block of timber.

A couple of gentlemen belonging to the city of New York went from Jersey City on skates down to Bergen Point, through the kills across the bay to Newark, which was accomplished in four hours.

The Chesapeake bay was frozen over at the Capes of Virginia in February last.

During the cold weather in January the children at Bordentown and Camden, New Jersey, sold hot bricks to the passengers on the railroad at sixpence each.

The thermometer at Charleston, South Carolina, in an exposed situation, on the 8th February, at daybreak, was at zero, an intensity of cold without example in the memory of man, or as far as the thermometrical records of that city reach. Fluids of almost every kind became congealed into solid substances.

The ice on the Mississippi, at Bowling Green, on the 8th February, was strong enough for foot passengers to cross on, and the following day horses and teams crossed in safety.

In 1641 Governor Winthrop, in his journal, mentions that the frost was so great that the Boston bay was frozen over from the 18th November to the 21st December, so that horses and carts crossed over parts where ships had sailed. Loads of wood drawn by six oxen passed

from Muddy river to Boston. It was frozen as far out to sea as one could discern. The great bay at Virginia was also frozen over, and all their great rivers.

In 1779, December, a correspondent of the National Intelligencer, resident in Virginia, says, Colonel Baylor's regiment of horse crossed the Potomac river at Georgetown upon the ice on their march to the Carolinas.

In 1780, January 14, the cold was so intense that the mercury sunk into the bulbs of the thermometers. That winter the gentleman thinks was 40 degrees colder than this. The ice upon James river was 38 inches thick, and the Chesapeake bay was so completely bridged with ice that many persons crossed over upon it from Annapolis to Kent island. A person who had the traditions from his parents assures us that loaded wagons passed over the bay at the points designated. An old revolutionary officer, who resides near the correspondent of the Intelligencer, states, that on the 7th March, 1780, he rode from Falmouth to Fredericksburg, Virginia, upon the ice of the Rappahannock river, in company with his regiment, which was returning to Virginia from the north.

The cold weather continued without intermission from the 10th of December, 1779, to the 9th of March, 1780.

In 1797, January 8, Governor Sargeant, of Ohio, says that the thermometer stood 18 degrees below zero.

In 1819, January 20, the mercury in a thermometer at Norfolk, kept by Mr. W. G. Lyford, in the sun was at 101 degrees.

In 1821, January 26, the river from Norfolk to Portsmouth, and down to the bight of Craney island, was completely frozen.

In 1822, January 25, the thermometer stood at 14 degrees.

In 1827, January 21, the river was frozen across from Norfolk to Portsmouth, and on the succeeding day from Lambert's Point to Craney island.

The past winter has been severe in Europe, but the cold has by no means been unprecedented, as will be seen by the following:

In 1133 the Po was frozen from Cremona to the sea.

In 1234 loaded carts and wagons crossed the Adriatic in front of Venice.

In 1305 all the rivers of France were frozen over.

In 1324 it was possible to travel from Denmark, Lubec, and Dantzic, on the ice.

In 1334 all the rivers in Provence and Italy were frozen. At Paris the frost lasted two months and 20 days.

A. D. 1433 frost commenced at Paris the last of December and continued during three months, less nine days; recommenced towards the end of March and continued until the 17th of April. The same year it snowed in Holland 40 consecutive days.

A. D. 1460 the Danube and the Rhine frozen.

In 1468 wine was reduced to ice in France and cut with an axe. In 1544 a similar severity of cold occurred, and a similar operation became necessary in France.

A. D. 1493 the port of Genoa frozen.

A. D. 1507 the port of Marseilles frozen in all its extent. Three feet of snow fell at the same city on the day of Epiphany.

A. D. 1568 from the 11th to the 21st of December, the Rhone was passed on the ice.

The winter of 1570-'71, from the end of November to the end of February, was so severe that all the rivers, even those of Languedoc and Provence, were so completely frozen that they were passed with loaded carriages.

A. D. 1709 (perhaps the most intense season which has ever occurred within the range of history) the Adriatic sea, and the Mediterranean, from Genoa by Marseilles to Cette, frozen. All the rivers and narrow seas of Europe frozen.

FACTS FROM VARIOUS SOURCES.

Fruit Culture in Florida.—The following extracts are from a letter relative to the culture of lemons and other fruits of Florida, from Manatee county, Florida:

The lemons have a rough, thick skin when first pulled, but allowed to wilt in a cool, airy loft, the skin becomes thin and soft, and the lemon is full of fine sour juice. In the wilted state I think the limes and lemons would bear shipping much better than when just pulled, but we have no direct communication with the northern cities, and thus far find no sale for lemons or limes. If, therefore, we can find some use for the expressed juice, it will be of great service to this region, for the lemon and lime both thrive well on pine lands, bear at an earlier age than the orange, and that on lands that will not produce the orange to any advantage. The guava also does well on poor land in this region and all south of this—

grows fast and bears in three years. Very nice jelly and marmalade are made from the guava grown here. I am but just beginning to plant bananas; have had a few for several years, and fully tested their good qualities, and have now some 2,000 plants, mostly young. The winters are rather severe here, but the fruit matures well and bids fair to become the most profitable that can be raised in this region. It requires a rich and slightly moist soil, gives fruit from the sucker or sprout in 12 to 18 months, and when well attended yields from one to five or six bunches on every five feet square, the large bunches frequently selling as high as two dollars.

The most successful manuring thus far tried here, for the banana, corn, cane, &c., is animal matter combined with lime and covered with muck, marsh mud, or even soil, to absorb the ammonia set free by the lime. The scrapings of a few hides thrown around a clump of bananas have excited no little admiration. But the most available manure in this region is the fish. I have taken some pains to get the offal from the fisheries, and mixing this with lime and covering with muck, have brought out fine corn, sugar cane, cabbage, &c., on lands by nature very poor. This should be more generally known. Fish are very abundant on the Florida coasts, and should be made more profitable than hitherto. Thus far the mullet have been taken late in the season, cured with a large amount of salt, drypacked, heads, back bones, scales and all, and in truth neither fit for man nor beast; whereas, taken in season, neatly cleaned, and packed in kits, half-barrels, &c., they would be accounted a treat on the tables of the better sort. The offal thus left, heads, entrails, and back-bone, packed in lime and muck, would pay well at $5 per ton, and at that the poor land along our coast become the most productive and profitable in the whole country. I combine lime with the offal, to make the manure more permanent as well as to keep it from hogs and buzzards, and cover with marsh mud to save the ammonia. A shark is now and then thrown in with the offal, and the carcass, after the liver is taken out for the oil, still yields a large amount of ammonia. The oil from the fish heads, and sometimes fifteen or twenty gallons from a single shark's liver, will more than pay for the expense of taking the fish.

Drying Sweet Potatoes.—The extreme difficulty of keeping sweet potatoes in good condition, especially in the markets and storehouses of cities, exposed to constant changes of heat and moisture, is fully appreciated by housekeepers and dealers in vegetables. The wonderful productiveness of this esculent in the south, and its great value as a cheap, nutritious, and favorite food of all classes, has often suggested the wish that it might be more available as a food product. Dr. C. K. Marshall, in the Vicksburg Times of September 4th, 1867, asked:

Cannot sweet potatoes, which our soil and climate are so wonderfully adapted to produce, be cut up into slices and so dried that they might be made an article of merchandise? Fruits and vegetables have been dried and prepared for shipment, and thus become valuable crops. If sweet potatoes can be treated so as to preserve the saccharine matter, and become an article of food, even though not as agreeable as the undried root in its best condition, they would pay as handsomely as any product of the southern soil.

This inquiry has been answered by Francis H. Smith, of Baltimore, who has dried sweet potatoes successfully in his drying tunnel, which is a chamber of lath and plaster twenty feet long and six feet in depth and breadth, with a peculiar furnace at one end, a chimney of boards at the other, capable of preparing twenty-five bushels of dried peaches. Mr. S. makes the following statement of his mode of procedure:

They are pealed by a little machine, and sliced three-eighths of an inch thick by another, with great rapidity. When dried, they have lost two-thirds of their weight, weighing twenty pounds; are white, and so flinty that the knife makes but little impression; but when cooked—steaming is the best—they resume their original appearance, and are in every respect equal to the undried root in its best condition.

Specimens of this dried potato may be seen in the museum of the Agricultural Department. It is easily cooked, quite palatable, and if it should become popular would prove of great utility and economical and agricultural value.

Farming in California.—The following is an extract from a letter of John R. Kennedy, recently of this city, to Commissioner Capron, in which the farm of Hon. John Bidwell, the chairman of the House Committee on Agriculture in the last Congress, is mentioned:

You have seen many fine farms, I have no doubt; but, notwithstanding, I think if you could see General Bidwell's farm you would say it surpassed, in everything, any farm that it might have been your pleasure to have seen previously. This grand farm contains twenty odd thousand acres of the finest land in California, extending as it does from the

Sacramento river to the Sierra Nevada mountains; the soil is susceptible of producing any variety of grain, fruit, or plant. You may know what soil it must be to yield yearly 40 bushels of wheat to the acre. General Bidwell produces a large amount of farm stock and grain, and is also extensively engaged in fruit-growing. I might mention that in addition to the apple, peach, and pear, he grows extensively the plum, nectarine, pomegranate, fig, grape, and almond, and has a few olives and English walnuts; and in a short time will have the orange and lemon in fruit, both of which thrive finely in this climate. General Bidwell's house is nearly completed, and when finished will be one of the finest on the Pacific coast.

INDIAN COTTON.—The Department of Agriculture has been repeatedly urged to introduce foreign cotton-seed for trial in the south. While this branch of the government should be awake to all tests of new products or untried varieties of plants of this country, it has always been claimed that the gulf coast already produces the most desirable known varieties of cotton for profitable culture. The inferiority of India cotton is universally acknowledged by manufacturers. It has been tried here with little success, while our cotton has been planted in India amid opposition and prejudice, and has at last achieved an undeniable triumph, as will be seen from the following extract from a report of the Bombay authorities:

In addition to what is described above, (extensive sowings in Dharwar,) large sowings of New Orleans exotic have been made in the Ahmedabad, Rhandeish, Ahmedrugger, Sholapoor, Sattara, and Broach districts of this presidency, as well as in various other parts of India out of the administration of the Bombay government, such as Central India, the Punjaub, Coorg, &c. All interested in the improvement and extension of India cotton cultivation should bear in mind that the New Orleans variety is the most productive of any; at a rough computation, the yield of this description must be 20 per cent. in excess of most other superior varieties, and, probably, as much as 40 per cent. over some of the inferior kinds.

Four years ago 214,000 acres in Dharwar were sown with American cotton. Last year 300,398 acres in that district were sown with the same description, and 465,086 acres in other districts of Bombay.

FRENCH IMPORTS AND EXPORTS.—The following are the principal items of imports and exports of France in 1866. The prominence of textile manufactures will be seen at a glance:

IMPORTS FOR CONSUMPTION.

	Francs.
Cotton	147,998,997
Silk	96,688,655
Cotton yarn	10,992,441
Woollen yarn	6,868,905
Flax and hemp yarn	5,884,554
Goats' hair yarn	7,002,016
Wool	73,835,758
Woollen tissues, &c	34,264,815
Cotton tissues	17,164,839
Silk tissues	4,500,235
Linen tissues	4,366,352
Cashmere tissues	5,269,865
Ready-made linen and clothes	1,322,795
Coal	32,813,181
Copper, (ore not included)	31,349,036
Iron, (ore not included)	7,215,140
Tin	4,491,144
Coffee	12,583,606
Machinery	12,267,835
Iron vessels	8,340,550
Wooden vessels	1,585,920
Hides	8,765,973
Jute	9,073,584
Iron tools	4,716,161
Indigo	3,766,147
Grain	4,058,010
Pottery and glass	1,531,445
Rags	1,049,043

EXPORTS OF FRENCH PRODUCTIONS.

	Francs.
Silk tissues	265,524,927
Woollen tissues	99,442,169
Cotton tissues	11,509,056
Linen tissues	3,369,094
Raw silk	25,804,629
Wool	6,983,190
Goats' hair	6,341,603
Yarn of all kinds	4,613,228
Grain	62,993,073
Flour	52,009,280
Mercery and buttons	58,675,545
Brandy and spirits	51,533,085
Wines	42,381,510
Butter	50,522,161
Eggs	38,477,403
Leathern articles	46,524,064
Cattle	32,597,374
Linen wearing apparel	15,960,753
Millinery and artificial flowers	14,172,677
Chemical products	12,590,580
Raw sugar	11,502,749
Refined sugar	7,535,997
Rags	6,514,988
Tools	6,818,584
Pottery and glass	7,148,126
Hides	4,148,283
Prepared skins	28,698,532
Turnery	2,826,790

DIFFERENCE IN QUALITY AND VALUE OF MILK.—Too little attention is paid to *quality* in milk. Much is complained of adulteration, and very justly; but little is thought of the adulteration practiced before *milking*. Dr. Voelcker has analyzed six samples of unadulterated milk, and the difference in yield of butter ranged 7.62 to 1.79 per cent. The poverty of food accounted for the reduction in quality. Attention should be carefully given to selection of cows, not only as regards quantity but quality. An example of an English cow is given by the Pall Mall Gazette, which for eight consecutive years gave an average of 1,210 gallons per annum, one year giving 1,230 gallons in 328 days, which yielded 540 pounds of butter, valued at £27, or $135, at 25 cents per pound. It took $22\frac{3}{4}$ pounds to one of butter.

ANALYSIS OF SOOT.—The following is an analysis of a sample of soot recently made in the laboratory of the Chemico-Agricultural Society of Ulster, England. Having been stored for some time, it had attracted seven per cent. of moisture; 100 parts of it were found to consist of—

Moisture	7.10
Carbonaceous matters	63.32
Mineral matters	29.58
	100.00

The organic matter was capable of yielding three parts of ammonia. The mineral matter consisted of—

Oxide of iron	4.06 parts.
Sulphate of lime	8.75 parts.
Silica and sand	15.85 parts.
Alkaline salts	0.39 parts.

Dr. Hodges stated that the soots from some kinds of coal frequently contained as much as seven per cent. of ammonia.

A conversation took place on the subject. Steam soot was said to be of little or no value, and the carbonaceous particles in soot in general averaged from 40 to as much as 80 per cent.

GEESE.—The breeding and raising of geese can be made a source of considerable profit. It can be made a larger business than is generally supposed practicable. Many have proved it remunerative in this country, but none have carried it to such an extent as have poultry breeders in Europe. Norfolk, in England, is celebrated for its poultry of all kinds. A single operator there, a Mr. Bagshaw, last year fattened 12,000 geese for market. The feeding commences about the middle of November, using barley-meal and brewers' grains. The quantity of food required is about 90 coombs (of four bushels) of barley-meal and 60 coombs of grains daily. The manure from such an immense number of fowls, fed upon such a description of food, is very valuable, and frequent applications for the sale of it are made; but as Mr. Bagshaw holds a farm close by his poultry-yard, he prefers to make use of it himself. It takes about six days to make preparations for the market, and about 100 dressers are employed in the work. During the last Christmas week, no less than from 70 to 80 tons weight were sent away from Norwich by rail, the geese averaging in weight from nine to 16 pounds. Last year some weighed as much as 22 pounds; but, as a rule, the birds were not so fine this year. The feathers realized from the lot of 12,000 amounts, in round numbers, to 4,000 pounds; the quills and waste feathers being kept separately, and sold by themselves.

THE CONSUMPTION OF MUSSELS.—A bushel measure will contain, at a rough estimate, 2,000 mussels, and in London only, 50,400 bushels are consumed annually for the "million." "One million quarts, sold in the streets at one penny per quart, give a return of £4,000 per annum." The consumption in Edinburgh and Leith is ten bushels per week—in all, 400 bushels per year. But even this

is a mere nothing compared to the supply required for deep-sea fishing. There are four large deep-sea fishing boats at Newhaven, which generally go out three times a week thirty weeks in the year; each boat carries a crew of eight men and eight fishing lines, each line 800 yards in length; to bait each of these long lines, 1,200 mussels are required. Add to the four deep-sea fishing boats sixteen lesser craft that go fishing every day, wind and weather permitting, (Sundays excepted,) for the annual supply of which 3,456,000 mussels are needed for baiting the lines, and the number of these shell-fish consumed each year in Newhaven only will be seen to be something enormous. Quite as many, if not more, are used at Musselburg, Buckhaven, Elie, Anstruther, and elsewhere in Scotland.

GRAIN ESTIMATES FROM LOCAL DATA.—A gentleman in the wheat trade in Jerseyville, Illinois, writes as follows:

In my dealings with the farmers—for my purchases are mostly from them—I have frequent occasion to correct wrong impressions. Many of them form the willing opinion that when their own crops fail partially, or a severe drought threatens their destruction, as has been the case for the past two months, that the whole country is suffering in like manner, and that, consequently, grain must materially enhance in price before another crop can be produced; and again, because wheat went up last year, it must necessarily do so this year. With these views many of them hold back and will not sell until they see another bountiful crop staring them in the face; when they often take much less than they could have obtained months before. Many of them are laboring under this delusion now, notwithstanding every State nearly has produced a surplus.

THE PATERSON POTATOES.—The Paterson seedling potatoes, from Dundee, Scotland, which have been mentioned heretofore in the reports of the experimental garden, produced last season as follows, in Celle, Hanover, kingdom of Prussia, in light, sandy soil, while other varieties were disastrously blighted:

Victoria, per imperial acre, 7½ tons, contains starch	21.15
Napoleon, per imperial acre, 5⅝ tons, contains starch	16.50
Regent, per imperial acre, 7½ tons, contains starch	12.00
Early, per imperial acre, 7½ tons, contains starch	16.50
Seedling Rock, per imperial acre, 9¾ tons, contains starch	14.00
Red, per imperial acre, 9 tons, contains starch	17.63
Blue, per imperial acre, 7½ tons, contains starch	14.00

ROOT CULTURE IN MARYLAND.—George F. Armor, of Ellwood, Baltimore county, Maryland, communicates the following result of an experiment in the culture of the Mangold Wurzel, undertaken to test the profit of such a crop in that neighborhood. The yield, as will be seen, was something more than four bushels to the square rod, or about 700 bushels per acre, produced at a cost of a little more than ten cents per bushel:

I had a piece of ground prepared 15 by 120 feet, southern exposure, slightly rolling, but inclined to be wet. After ploughing and manuring, (with stable manure,) the seed was run in drills three feet apart, making six rows 120 feet long, on or about May 10. Upon thinning out, enough plants were cast away to have run at least 12 rows additional. The roots were gathered November 8, and the result was 28 bushels. The tops I fed to the cattle, and they were eaten with great avidity, and the roots were greatly relished. So far as I can judge from so limited experiment, the result is highly satisfactory. The whole cost, including 12 ounces of seed, (Long and Yellow Globe mixed,) at $1 per pound, three cultivatings, including use of horse, does not exceed $3, or about $72 per acre.

RESULT OF PIG FEEDING.—Daniel Edwards, of Little Genesee, Alleghany county, New York, gives the following statement of his experience in feeding a pair of Chester White pigs, showing very satisfactory results, except that he claims too much for the meal, forgetting the sour milk and the clover:

Permit me to relate my first experience with the "Chester White pigs," a pair procured last June. On the 10th of July the sow pig weighed 65 pounds, the boar 55 pounds. They were kept in a pen until after the clover bloomed, after haying, when they were let into a clover field. Their principal food was unsifted corn meal, cooked by boiling, with a little salt, every pound of meal being weighed. They had about a pailful of whey or sour milk daily, besides the meal and clover. On the 6th of October the sow weighed 187 pounds, the boar 159 pounds, a gain of 226 pounds in 88 days. They ate 315 pounds of meal, 3 pounds and 9 ounces daily, producing 11⅛ ounces of live flesh for 1 pound of meal.

THE CUMBERLAND TABLE LANDS OF TENNESSEE.—The agricultural abundance of this region is indicated by the prevailing prices of farm produce. At Tullahoma, midway between Nashville and Chattanooga, on the railroad, wheat was sold last fall for $1 50, when it was selling in the interior of Minnesota, where little else but wheat is grown, for $1 60 per bushel. At the same time corn was 50 to 60 cents, potatoes 50 cents per bushel, butter 20 cents per pound, eggs 15 cents per dozen, beef 6 to 8 cents per pound at retail, and cows $18 to $40 each. It is reported that the ground was covered with snow but eight days last winter, and that at no time did the snow remain on the ground more than 48 hours, the frost penetrating not more than two or three inches. Farmers can labor out of doors nearly all winter, and ploughing is interrupted only a small portion of the time. Coal, iron and timber abound, with limestone, sandstone and hydraulic lime; most of the land is comparatively level and moderately fertile; the grasses flourish; all ordinary farm crops are grown, and fruits, particularly peaches, are a sure crop. Good farms in this county can be bought at $5 to $10 per acre. Wild lands can be had as low as one dollar per acre.

ANTS AT THE ROOTS OF FRUIT TREES.—Rev. W. P. Smith, M. D., of Fayetteville, Texas, communicates the following successful mode of dealing with ants at the roots of fruit trees, which are very troublesome and destructive, particularly in warm climates:

I was raising some tobacco, and operated with the green leaves in the following manner: I removed the earth from around the trees or vines as much as I could without injuring the roots; then I put a handful of the tobacco leaves around the tree, or vine, where the ants worked, covered them nicely with the earth, pressed it well. In a few cases I had to repeat the dose, but I have tried it often, with uniform success in driving the ants and saving the tree or vine.

GRASSHOPPERS.—A letter to Hon. W. H. Hooper, delegate from Utah, gives the following statement concerning the grasshopper pest in the vicinity of Salt Lake City:

I have found a great number of "hoppers" in my lot, and a specimen of dirt from the southeast corner of this city demonstrated the presence of large numbers, averaging from 200 to 250 to the square inch, all alive and hearty. On the northeast bench (facing south) there are hundreds hopping around already.

William Fuller, secretary of the Salt Lake Farmer's club, writes under date of April 30:

"Hoppers" are hatching out very freely and very fast. I have seen in many parts of this city the ground and shrubbery covered with minute objects. The cold weather does not seem to effect them, or if it does, their places are quickly filled.

METEOROLOGY.

[Compiled in the Department of Agriculture, from reports made by the observers for the Smithsonian Institution.]

MARCH, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for March, 1868, at the stations named and as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melted snow.
MAINE.				°		°	°	*In.*
Steuben	Washington	J. D. Parker	14	50	1, 2	— 2	29.2	3.80
West Waterville	Kennebec	B. F. Wilbur	31	55	6	— 5	31.6	3.53
Gardiner	....do	R. H. Gardiner	27, 31	54	6	— 1	33.0	2.18
Standish	Cumberland	John P. Moulton	27	53	6	— 2	31.2	2.19
Norway	Oxford	Howard D. Smith	31	56	6	— 3	30.9	.....
Cornish	York	Silas West	31	56	1	— 4	31.1	2.07
Cornishville	....do	G. W. Guptill	31	52	1, 2	— 2	31.6	2.15
Averages							31.2	2.60
NEW HAMPSHIRE.								
Portsmouth	Rockingham	John Hatch	14	62	1	1	34.0	.....
Stratford	Coos	Branch Brown	16	59	1	—13	26.2	0.95
North Barnstead	Belknap	C. H. Pitman	15, 17	52	1	0	33.1	2.07
Concord	Merrimack	John T. Wheeler	18	58	6	— 2	33.0	.....
Goffstown Centre	Hillsboro'	Alfred Colby	31	60	1, 2, 3	—10	27.9	.....
Averages							30.8	1.51
VERMONT.								
Lunenburg	Essex	H. A. Cutting	31	57	1	—12	28.3	2.80
North Craftsbury	Orleans	Edward P. Wild	31	58	1	— 6	31.8	2.47
Randolph	Orange	Charles S. Paine	31	60	1	—16	28.4	1.66
Woodstock	Windsor	Doton & Miller	31	57	1, 5	—14	.....	.....
Middlebury	Addison	H. A. Sheldon	16, 17	58	2	— 9	30.6	2.25
Averages							29.8	2.27
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	14, 15	60	4	2	36.2	4.15
Topsfield	Essex	S. A. Merriam	15	55	1	2	32.2	3.41
Lawrence	....do	John Fallon	14, 15, 18	55	2	2	33.7	1.56
Georgetown	....do	S. A. Nelson	15	56	1, 3	4	32.9	.....
Newbury	....do	John H. Caldwell	15	57	1	1	33.3	.....
Milton	Norfolk	Rev. A. K. Teele	18	61	1	— 1	33.9	1.70
Brookline	....do	Rev. J. B. Perry	17	71	3	2	37.7	.....

Table showing the range of the thermometer, &c., for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
				°		°	°	*In.*
MASS.—Continued.								
North Billerica	Middlesex	Rev. E. Nason	17, 27, 31	58	6	— 2	34.6	.....
West Newton	....do	John H. Bixby	17	62	1	— 4	35.0	.....
New Bedford	Bristol	Samuel Rodman	14	58	4	2	35.2	4.52
Worcester	Worcester	Jos. Draper, M. D	15	56	3	— 2	33.9	3.82
Mendon	....do	Jno. G. Metcalf, M. D	17	60	3, 4	— 2	33.1	.....
Lunenburg	....do	Geo. A. Cunningham	15, 31	58	4	— 3	34.1	2.30
Amherst	Hampshire	Prof. E. S. Snell	31	60	1	— 7	33.8	3.25
Richmond	Berkshire	Wm. Bacon	31	67	1	— 4	37.8	3.63
Williams College	....do	Prof. A. Hopkins	17	65	3	— 2	32.0	1.20
Averages							34.3	2.95
RHODE ISLAND.								
Newport	Newport	Wm. H. Crandall	28, 31	64	4	4	35.9	4.60
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	15	55	3	— 3	32.4	2.20
Columbia	Tolland	Wm. H. Yeomans	15	63	3	— 4	36.0	.....
Middletown	Middlesex	Prof. John Johnston	28	63	3	— 5	35.1	2.78
Colebrook	Litchfield	Charlotte Rockwell	15	64	3	—10	32.6	.....
Groton	New London	Rev. E. Dewhurst	31	60	4	— 3	34.5	2.47
Averages							34.1	2.48
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh's	31	70	4	0	39.4	3.29
South Hartford	Washington	G. M. Ingalsbe	31	67	4	— 7	34.8	2.45
Troy	Rensselaer	Jno. W. Heimstreet	31	63	1	— 1	35.5	2.06
Germantown	Columbia	Rev. S. W. Roe	15	70	3	— 1	36.9	4.20
Garrison's	Putnam	Thomas B. Arden	31	61	3	2	37.0	2.62
Throg's Neck	Westchester	Miss E. Morris	31	62	3	3	37.1	.....
White Plains	....do	O. R. Willis	17	60	3	2	35.3	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	31	57	3, 4	4	36.7	3.69
Columbia College	....do	Prof. Chas. A. Joy	17	59	3	8	39.3	2.60
Flatbush	King's	Eli T. Mack	31	58	3	3	36.2	1.35
Newburgh	Orange	James H. Gardiner	31	65	3	— 5	37.5	2.25
Minaville	Montgomery	Prof. D. S. Bussing	31	61	3	—10	28.4	2.73
Gouverneur	St. Lawrence	C. H. Russell	17	64	1	—22	31.1	1.86
North Hammond	....do	C. A. Wooster	17, 31	70	1	—15	30.7	3.93
South Trenton	Oneida	Storrs Barrows	16	65	1	—18	30.4	3.00
Cazenovia	Madison	Prof. Wm. Soule	17	64	1	—10	32.7	.....
Oneida	....do	S. Spooner, M. D	16	67	1	—10	.....	4.80
Houseville	Lewis	Walter D. Yale	17	59	1	—12	31.1	3.31
Depauville	Jefferson	Henry Haas	17	66	1	—10	32.7	4.47
Theresa	....do	S. Gregory	17	68	1	—22	.....	2.22
Oswego	Oswego	Wm. S. Malcolm	17	65	1	0	33.8	3.80
Palermo	....do	E. B. Bartlett	17	60	1	— 8	30.5	2.60
Nichols	Tioga	Robert Howell	17	66	5	—11	35.3	.....
Newark Valley	....do	Rev. Sam'l Johnson	17, 30, 31	60	1, 4	—12	29.8	.....
Geneva	Ontario	Rev. Dr. W. D. Wilson	9, 15	64	3	— 4	35.9	2.46
Rochester	Monroe	Henry W. Mathews	17	72	3	— 4	34.8	4.38
Do	....do	W. L. M. Fiske, M. D	17	72	3	— 7	34.7	4.38
Little Genesee	Allegany	Daniel Edwards	30	68	5	—22	33.6	2.80
Suspension Bridge	Niagara	W. M. Jones	17	64	3	— 5	38.0	.....
Buffalo	Erie	Wm. Ives	28	63	3	—11	34.7	4.66
Averages							34.4	3.16

Table showing the range of the thermometer, &c for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
NEW JERSEY.				°		°	°	*In.*
Paterson	Passaic	Wm. Brooks	14, 31	62	3	1	37.2	2.68
Newark	Essex	W. A. Whitehead	31	61	4	2	37.3	2.17
New Brunswick	Middlesex	Geo. H. Cook	17	77	3	4	36.2	1.60
Trenton	Mercer	E. R. Cook	17	68	4	1	41.2	2.99
Burlington	Burlington	John C. Deacon	17	80	4	4	41.2	3.60
Moorestown	....do	Thos. J. Beans	17	79	3	2	38.1	2.68
Mount Holly	....do	M. J. Rhees, M. D	17	80	4	2	40.0	.....
Elwood	Atlantic	Joseph S. Fritts	17	75	4	4	40.2	.....
Dover	Morris	Howard Shriver	17	68	3	1	36.8	2.41
Haddonfield	Camden	Samuel Wood	17	78	3	4	39.0	3.54
Newfield	Gloucester	E. D. Couch	17	80	1, 3, 4	4	39.6	.....
Greenwich	Cumberland	R. C. Sheppard	17	76	3	8	40.2	5.31
Vineland	....do	John Ingram, M. D	17	81	3, 4	5	41.9	4.82
Averages							39.2	3.18
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	15	70	1	—10	35.7	3.30
Fallsington	Bucks	Eben'r Hance	17	78	4	0	39.3	2.50
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	17	76	3	9	40.9	3.80
Germantown	... do	Thomas Meehan	17	80	3	2	38.0	.....
Horsham	Montgomery	Miss Anna Spencer	17	80	3	2	38.2	3.01
Plymouth Meeting	....do	Marcus H. Corson	17	78	3, 4	5	38.2	.....
Dyberry	Wayne	Theodore Day	17	69	5	—22	32.0	.....
Whitehall	Lehigh	Edward Kohler	31	62	1	— 2	36.5	.....
Parkesville	Chester	F. Darlington, M. D	17	75	5	0	37.1	3.20
Reading	Berks	J. Heyl Raser	31	65	3	5	39.0	.....
Ephrata	Lancaster	W. H. Spera	15, 31	68	3	0	40.3	2.37
Harrisburg	Dauphin	John Heisely, M. D	31	62	3	6	38.6	2.47
Ickesburg	Perry	Wm. E. Baker	15	71	3	— 2	37.2	2.31
Lewisburg	Union	Prof. C. S. James	31	64	5	—11	35.0	2.38
East Tioga	Tioga	E. T. Bentley	30	74	3	—20	32.8	2.05
Grampian Hills	Clearfield	Elisha Fenton	31	63	3	—14	32.7	4.03
Murrysville	Franklin	F. L. Stewart	15	71	3	— 3	41.0	3.44
Franklin	Venango	Rev. M. A. Tolman	15	68	3	—25	36.2	.....
Connellsville	Fayette	John Taylor	15	72	3	— 7	42.8	.....
Beaver	Beaver	Rev. R. T. Taylor	15	69	3	0	43.3	3.20
New Castle	Lawrence	E. M. McConnell	15	68	3	— 7	40.9	.....
Canonsburg	Washington	Rev. W. Smith, D. D	16	76	3	— 4	43.0	3.76
Factoryville	Wyoming	Rodman Sisson	17	69	5	—20	34.4	.....
Averages							38.0	2.99
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	17	80	4	0	39.4	3.00
Annapolis	Anne Arundel	Wm. R. Goodman	16	70	4	6	43.5	3.41
St. Inigoes	St. Mary's	Rev. J. Stephenson	17	76	4	12	44.7	3.69
Emmittsburg	Frederick	Eli Smith	15	72	3	2	39.5	.....
Mt. St. Mary's Coll	....do	Prof. C. H. Jourdan	15	66	3	2	39.6	2.43
Averages							41.3	3.13
VIRGINIA.								
Surry C. H	Surry	B. W. Jones	17	88	4	16	51.7	.....
Comorn	King George	E. Tayloe	17	86	3, 4	15	48.7	0.24

Table showing the range of the thermometer, &c., for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
VIRGINIA—Con.				°		°	°	*In.*
Lynchburg	Campbell	C. I. Merriwether	17	76	3	19	49.2	.....
Snowville	Pulaski	J. W. Stalmaker	16	74	3,4	12	45.5	13.25?
Mt. Solon	Augusta	Jas. T. Clarke, M. D.	17	82	3	12	48.3	.....
Wytheville	Wythe	James A. Brown	.....	.....	3	10	46.0	2.30
Averages							48.2	5.26
WEST VIRGINIA.								
Romney	Hampshire	W. H. McDowell	15	78	3	6	44.4	.....
Cabell C. H.	Cabell	C. L. Roffe	15,16	76	3	8	49.2	2.70
Burning Springs	Wirt	Rob't H. Bliven	16	104?	2,3	10	53.1	.....
Averages							48.9	2.70
NORTH CAROLINA.								
Goldsboro'	Wayne	E. W. Adams, A. M.	17	84	4	23	53.6	3.35
Oxford	Granville	Wm. R. Hicks, M. D.	17	80	3,4	22	49.0	4.20
Raleigh	Wake	Rev. F. P. Brewer	17	84	5	18	50.0	4.60
Albemarle	Stanley	F. J. Kron	17	88	5	16	51.6	4.70
Statesville	Iredell	Thos. A. Alison	17	81	4	15	47.7	3.25
Asheville	Buncombe	E. I. Aston	24	75	3	17	48.9	.....
Kenansville	Duplin	Prof. N. B. Webster	17	85	3,4	20	50.9	2.36
Averages							50.2	3.74
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	16	84	4,5	32	55.8	3.51
Gowdysville	Union	Charles Petty	24	82	4,5	22	52.9	.....
Averages							54.4	3.51
GEORGIA.								
Atlanta	Fulton	F. Deckner & Son	24	83	4	22	54.5	2.71
Macon	Bibb	Jno. A. Rockwell	16	85	3	34	60.1	4.35
Averages							57.3	3.53
ALABAMA.								
Moulton	Lawrence	Thos. M. Peters, A. M.	16	78	3	30	55.6	5.54
Carlowville	Dallas	H. L. Alison, M. D.	14, 15, 24	82	3	34	62.2	3.50
Fish River	Baldwin	W. J. Van Kirk	15, 16	84	4	30	63.5	2.20
Opelika	Lee	J. H. Shields	24	82	3	32	60.6	.....
Greene Springs	Hale	J. W. A. Wright	16	85	3	34	60.6	3.31
(Near) Havana	do	S. K. Jennings, M. D.	24	82	3,4	34	60.0	3.52
Averages							60.4	3.61
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	16,17	90	5	46	66.7	1.35
Port Orange	Volusia	J. M. Hawks	14	85	23	44	64.6	.....
Lake City	Columbia	Galen M. Fisher	16,17	84	4	39	62.8	.....
Averages							64.7	1.35
TEXAS.								
Columbia	Brazoria	Hennell Stevens	15	88	3	40	67.1	1.76
Waco	McLellan	Edw. Merrill, M. D.	22	83	3	38	63.7	10.60
Austin	Travis	J. Van Nostrand	14,16	83	3	40	64.7	4.55
Houston	Harris	Miss E. Baxter	10	80	3	41	67.8	.....
Averages							65.8	5.64

Table showing the range of the thermometer, &c., for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
LOUISIANA.				°		°	°	*In.*
New Orleans	New Orleans	Robt. W. Foster	16	83	3	53	.....	.....
Benton	Bossiere	J. H. Carter	24	82	3	33	61.6	.....
Averages							61.6	.....
MISSISSIPPI.								
Grenada	Yalabusha	Albert Moore	16	80	3,4	34	59.0	.....
Natchez	Adams	Wm. McCary	16	80	3	37	63.2	8.42
Marion	Lauderdale	T. W. Flores, M. D.	24	88	3	28	61.0	8.70
Brookhaven	Lawrence	T. J. R. Keenan	24	82	3	39	62.0	.....
Averages							61.3	8.56
ARKANSAS.								
Helena	Phillips	O. F. Russell	24	86	3	32	59.2	.....
TENNESSEE.								
Lookout Mountain	Hamilton	Rev. C.F.P. Bancroft	25	80	3	21	55.1	.....
Clarksville	Montgomery	Prof. W.M. Stewart	15, 16	78	3	21	55.0	5.52
Memphis	Shelby	Edw. Goldsmith	24	82	3	27	57.4	4.17
Elizabethton	Carter	Charles H. Lewis	10	79	4	16	50.1	.....
Averages							54.4	4.85
KENTUCKY.								
Chilesburg	Fayette	Sam'l D. Martin, M.D	15, 16, 25	76	3	10	49.9	3.47
Louisville	Jefferson	Mrs. L. Young	23	78	3	17	52.6	6.83
Danville	Boyle	O. Beatty	25	82	4	18	.....	.....
Lexington	Fayette	S. R. Williams	25	76	3	11	53.7	3.86
Averages							52.1	4.72
OHIO.								
New Lisbon	Columbiana	J. F. Benner	17, 24, 25, 31	65	3	—12	40.4	3.12
Steubenville	Jefferson	Joseph B. Doyle	15	67	3	0	44.0	.....
Milnersville	Guernsey	Rev. D. Thompson	23	76	3	—10	38.2	3.97
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	17	67	3	— 5	37.2	4.20
Do	do	T. A. Smurr, M. D.	17	68	2,3	— 2	40.2	.....
Wooster	Wayne	Martin Winger	15	74	3	—20	42.0	.....
Gallipolis	Gallia	Alex. P. Rodgers	15	76	3	3	48.5	3.69
Kelley's Island	Erie	Geo. C. Huntington	23	62	2	— 5	36.2	3.91
Sandusky	do	Thomas Neill	15	65	3	— 5	38.2	5.96
Norwalk	Huron	Rev. A. Newton	15	72	3	— 6	39.4	3.57
Carson	do	Mrs. M. M. Marsh	23	70	3	— 8	41.1	3.93
North Fairfield	do	O. Burras	15	72	3	—13	39.6	4.77
Westerville	Franklin	Prof. Jno. Haywood	15	74	3	— 3	41.3	7.93
Marion	Marion	H. A. True, M. D.	23	69	3	—11	39.6	7.42
Toledo	Lucas	J. B. Trembly, M. D.	15, 23, 30, 31	62	3	— 6	38.3	8.75
Bowling Green	Wood	John Clarke	23	77	3	—24	39.9	14.00
Kenton	Hardin	C. H. Smith, M. D.	16	60	3	4	39.8	12.72
Urbana University	Champaign	M. G. Williams	15, 23	72	3	0	42.6	7.51
Hillsboro'	Highland	J. McD. Mathews	15	71	3	3	44.5	6.59
Bethel	Clermont	Geo. W. Crane	15	73	3	4	46.0	5.75
Cincinnati	Hamilton	Geo. W. Harper	15	74	3	8	47.0	4.87
Do	do	R. C. Phillips	15	75	3	14	50.7	5.41
College Hill	do	John W. Hammitt	15	73	3	6	45.8	10.48
Averages							42.7	6.43

Table showing the range of the thermometer, &c., for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MICHIGAN.				°		°	°	*In.*
Monroe City	Monroe	Miss F. Whelpley	30, 31	71	3	— 8	37.0	3.35
State Agricult'l Col	Ingham	Prof. R. C. Kedzie	30, 31	64	4	— 7	37.8	4.65
Litchfield	Hillsdale	R. Bullard	23	69	4	—10	37.0	5.62
Grand Rapids	Kent	E. S. Holmes, D.D.S.	31	68	4	— 6	38.1	.....
Northport	Leelenaw	Rev. Geo. N. Smith	31	64	4	—11	31.2	.....
Otsego	Allegan	Milton Chase, M.D.	14, 15, 16, 29	68	4	— 2	40.0	.....
Holland	Ottawa	L. H. Streng	16	68	4	— 8	38.4	4.50
Copper Falls	Keweenaw	Dr. S. H. Whittlesey	29	53	2	— 5	26.6	2.95
Averages							35.8	4.09
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M. D	23	76	3	8	48.2	6.99
Vevay	Switzerland	Chas. G. Boerner	23	82	3	10	50.3	5.40
Muncie	Delaware	G. W. H. Kemper, M.D	23	76	4	4	43.5	10.09
Spiceland	Henry	Wm. Dawson	23	74	4	5	43.7	7.10
Columbia City	Whitley	Dr. F. and Miss L. McCoy.	23	78	3, 4	— 2	39.7	8.00
Indianapolis	Marion	W. J. Elstun, M. D	23	76	4	7	44.6	7.09
Rensselaer	Jasper	Dr. J. H. Loughridge	23	77	3, 4	8	42.9	11.25
Merom	Sullivan	Thomas Holmes	23	73	3	7	47.8	8.55
New Harmony	Posey	John Chappellsmith	23	78	3	15	52.0	6.40
Carthage	Rush	Charles M. Hobbs	23	72	2	0	44.5	7.75
State University	Monroe	Prof. C. M. Dodd	23	72	3	14	46.9	7.58
Averages							45.8	7.83
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr	16	72	3	5	43.8	5.25
Near Chicago	....do	Samuel Brookes	23	84	3	— 4	41.7	.....
Marengo	McHenry	O. P. Rogers	23	75	3	— 8	38.1	5.40
Golconda	Pope	Wm. V. Eldredge	16	84	3	12	53.1	4.10
Aurora	Kane	A. & E. D. Spaulding	23	71	3	—10	38.0	6.88
Sandwich	De Kalb	N. E. Ballou, M. D	23	74	3	— 8	39.6	4.86
Ottawa	La Salle	Mrs. E. H. Merwin	23	78	2	1	42.6	4.48
Wapello	De Witt	T. Louis Groff	23	80	3	—13	45.5	4.88
Winnebago	Winnebago	J. W. & Miss Tolman	23	73	3	— 9	38.3	4.78
Magnolia	Putnam	Henry K. Smith	23	82	3	— 5	43.2	6.50
Rochelle	Ogle	Daniel Carey	16	74	3	—12	38.5	.....
Wyanet	Bureau	E. S. & Miss Phelps	23	74	3	— 6	42.3	4.75
Tiskilwa	....do	Verry Aldrich	23	77	3	0	42.8	.....
Elmira	Stark	O. A. Blanchard	16	76	2	6	44.7	5.73
Peoria	Peoria	Frederick Brendel	23	75	3	9	45.7	5.38
Springfield	Sangamon	G. M. Brinkerhoff	16	75	3	4	44.0	.....
Waterloo	Monroe	H. Künster	23	80	3	18	51.3	.....
Dubois	Washington	Wm. C. Spencer	15	74	3	8	43.8	8.43
Galesburg	Knox	Prof. W. Livingston	16	75	3	4	43.2	5.40
Manchester	Scott	Dr. J. & C. W. Grant	15	79	3	11	47.6	5.81
Mount Sterling	Brown	Rev. A. Duncan	23	85	2, 3	12	48.9	.....
Andalusia	Rock Island	E. H. Bowman, M. D	16, 23	74	3	2	44.1	.....
Augusta	Hancock	S. B. Mead, M. D	23	75	3	10	47.6	5.63
Averages							44.1	5.52
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Löps	31	70	3	— 3	35.0	3.87

Table showing the range of the thermometer, &c., for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
WISCONSIN—Con.				°		°	°	*In.*
Plymouth	Sheboygan	G. Moeller	31	67	3	— 8	33.0	3.20
Milwaukee	Milwaukee	I. A. Lapham, LL.D	31	70	3	0	36.2	4.59
Appleton	Outagamie	John Hicks	31	62	3	— 5	33.3	1.35
Geneva	Walworth	Wm. H. Whiting	23	74	3	— 3	35.3	.....
Waupacca	Waupacca	H. C. Mead	31	71	3	—17	35.0	.....
Embarrass	....do	E. Everett Breed	31	66	3	—13	32.6	3.61
Edgerton	Rock	Henry J. Shintz	23, 29	80	3	—12	38.5	7.75
New Lisbon	Juneau	J. L. Dungan	31	73	3	—22	36.7	.....
Bayfield	La Pointe	Andrew Tate	31	76	3	—20	28.2	.....
Averages							34.4	4.06
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	31	65	3	—26	26.5	1.51
St. Paul	Ramsey	Rev. A. B. Paterson	31	70	3	—12	32.6	1.22
Minneapolis	Hennepin	Wm. Cheney	31	67	3	—15	32.2	0.90
Sibley	Sibley	C. W. & C. E. Woodbury.	31	67	2, 6	— 6	31.7	1.02
New Ulm	Brown	Charles Roos	31	71	2	0	34.5	0.51
Averages							31.5	1.03
IOWA.								
Clinton	Clinton	Dr. J. P. Farnsworth	23, 30	72	3	— 4	41.9	8.50
Davenport	Scott	D. S. Sheldon	16	71	3	3	41.6	11.84
Dubuque	Dubuque	Asa Horr, M. D	16	71	3	— 1	39.5	3.83
Monticello	Jones	M. M. Moulton	23	77	3	0	41.9	4.02
Burlington	Des Moines	Mrs. James P. Love	31	79	3	14	47.6	.....
Fort Madison	Lee	Daniel McCready	16	76	3	7	45.4	5.94
Guttenberg	Clayton	Jas. P. Dickerson	16, 31	74	3	— 8	36.1	.....
Ceres	....do	Jno. M. Hagensick	23	78	3	5	41.7	.....
Mount Vernon	Linn	Prof. A. Collins	16, 23	75	3	5	41.2	.....
Iowa City	Johnson	Prof. Theo. S. Parvin	31	75	3	3	42.7	6.31
Independence	Buchanan	Geo. Warne, M. D	16, 23	74	3	— 1	39.0	3.00
(Near) Independence	....do	Mrs. D. B. Wheaton	23	76	3	— 8	38.3	2.15
Waterloo	Black Hawk	T. Steed	23	77	3	— 2	39.0	.....
Marble Rock	Floyd	H. Wadey	23, 31	70	3	3	37.9	.....
Iowa Falls	Hardin	N. Townsend	23	74	3	2	35.3	3.82
Algona	Kossuth	Ph. Dorweiler	31	68	3	2	36.4	.....
Do	....do	James H. Warren	31	68	3	4	35.5	.....
Boonesboro'	Boone	E. Babcock	23	80	2	0	38.0	4.59
Fontanelle	Adair	A. F. Bryant	23	82	2	9	41.6	3.76
Logan	Harrison	Jacob F. Stern	22, 23, 24	84	2	13	43.0	2.40
Whitesboro'	....do	David R. Witter	22	81	2	6	40.1	.....
Fort Dodge	Webster	C. N. Jorgensen	23, 31	74	3	5	38.7	3.16
Rolfe	Pocahontas	Oscar I. Strong	30	70	2	4	37.2	3.00
Averages							40.0	4.74
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	23	80	3	16	52.3	6.54
Allenton	....do	A. Fendler	23	88	3	14	50.2	8.87
Canton	Lewis	George P. Ray	23	82	3	12	46.9	4.07
Christian University	....do	I. M. Parker	23	80	3	15	48.3	.....
Hermitage	Hickory	Miss Belle Moore	23	84	2	21	50.9	2.93
Rolla	Phelps	Homer Ruggles	23	87	3	19	51.2	6.59
Harrisonville	Cass	John Christian	23, 30	88	3	20	50.8	2.22

Table showing the range of the thermometer, &c., for March—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MISSOURI—Con.				°		°	°	*In.*
Oregon	Holt	William Kaucher	23, 24	87	2	17	48.5	3.60
Jefferson City	Cole	Nicolas De Wyl	23	80	3	18	49.0	.....
Hematite	Jefferson	John M. Smith	23	84	3	18	51.6	8.40
Averages							50.0	5.40
KANSAS.								
Leavenworth	Leavenworth	J. Stayman, M. D.	23	95	2	15	49.0	5.16
Olathe	Johnson	Wm. Beckwith	23	91	2	17	48.7	7.70
Atchison	Atchison	Dr. H. B. & Miss Horn	23	92	2	18	48.7	5.80
Lawrence University	Douglas	Prof. F. H. Snow	23	93	2	22	50.9	3.46
Holton	Jackson	Dr. James Watters	23	91	2	15	48.3	.....
State Agricult'l Coll.	Riley	Prof. B. F. Mudge	22	87	2	19	49.4	0.93
Council Grove	Morris	A. Woodworth, M.D.	23	92	2	23	52.3	4.45
Baxter Springs	Cherokee	Ingraham & Hyland	23	84	2	24	51.6	3.12
Averages							49.9	4.37
NEBRASKA.								
Elkhorn	Washington	John S. Bowen	24	85	2	12	42.7	.....
De Soto	....do	Charles Seltz	24	86	2	11	41.7	2.74
Glendale	Cass	Dr. A. L. & Miss Child	24	92	2	4	43.9	2.75
Dakota	Dakota	H. H. Brown	.....	.....	.....	.....	40.4	.....
Omaha Agency	(Reserve)	Rev. Wm. Hamilton	22	80	2, 3	15	42.0	1.32
Bellevue	Sarpy	Mrs. E. E. Caldwell	24	90	2	10	45.3	1.90
Averages							42.7	2.18
MONTANA.								
Helena	Edgerton	A. C. Wheaton	30	67	6	8	38.1	0.90

NOTES ON THE WEATHER FOR MARCH, 1868.

[Compiled in the Department of Agriculture, from the reports of observers for the Smithsonian Institution.]

Steuben, Maine.—Snow on the 3d, light as frost; very severe and driving snow-storm on 21st and 22d.

Lisbon, Maine.—On 1st ground frozen 34 inches. Saw crows on 13th, and heard robins on 28th.

Standish, Maine.—Toughest snow storm of the season on 2d and 3d, and at 5.50 p. m. on 3d an earthquake of a few seconds duration.

Norway, Maine.—Ground frozen in many places 3½ feet. Sparrows and blue-birds seen on 14th.

Cornishville, Maine.—Severe drifting snow-storm on 2d, 8 to 12 inches deep. Robins seen on 16th, blue-birds on 18th.

Stratford, New Hampshire.—Winter remarkably cold and dry, and March gone out dry; snow a foot deep in the woods.

Antrim, New Hampshire.—Thaw from 7th to 20th. Severe snow-storm on 21st, blocking up the roads. Sugar season fairly commenced on 23d, with plentiful flow of sap to end of the month.

Lunenburg, Vermont.—Another dry month; snow nearly gone and roads muddy.

Craftsbury, Vermont.—Month remarkable for rapid transition from winter to spring. Snow disappeared between 5th and 20th. Robins seen on the 16th, a month earlier than usual.

Randolph, Vermont.—Best sugar weather in 20 years since 22d. First real thaw since Christmas began the 9th.

Woodstock, Vermont.—First thunder-storm this season on 16th.

Kingston, Massachusetts.—Great snow-storm (a "line gale" in earnest) on 21st and 22d. Up to April 6½ feet of snow fell, and the ground was never bare during the winter months, and is yet frozen three feet deep.

Georgetown, Massachusetts.—Snows of 2d and 21st were severe. Rain of 12th and 13th quite a storm. From thence to end of month remarkably clear and pleasant, but cold. A few gardens were made 30th and 31st—about 10 days later than usual.

Newbury, Massachusetts.—White frosts on 9th, 20th, 29th, 30th and 31st; on the 29th very heavy. Blue-birds on 12th, robins 15th, black-birds 16th.

New Bedford, Massachusetts.—Ground nearly free from frost, and grass beginning to show the green. Frogs heard on 29th.

Mendon, Massachusetts.—Ponds free from ice on 18th. Snow nearly gone on 31st.

Amherst, Massachusetts.—Blue-birds seen on the 11th, and robins on the 13th.

Richmond, Massachusetts.—On 10th crows and henhawks seen, and robins and phebe-birds very musical. On 31st ponds free from ice, and frogs piping.

Williamstown, Massachusetts.—First thaw on 7th, blue-birds 14th, robins 15th, black-birds 16th, purple thrush 19th; severe snow-storm 21st.

Newport, Rhode Island.—Inner harbor froze over to Goat island for the first time this winter on the 4th; never known to occur in March before. Thunder-showers at 2 a. m. on 17th.

Columbia, Connecticut.—Blue-bird appeared on 8th, robin 10th; severe snow-storm on 21st and 22d; about 6 inches fell, and drifted badly.

Colebrook, Connecticut.—Severe northeast snow-storm on the 2d; about a foot fell.

Moriches, New York.—Month closes with its warmest day, and the frogs in full concert.

South Hartford, New York.—Lake Champlain open to navigation on 20th.

Troy, New York.—Mean temperature of March nearly 2° above the same

for 12 years past. On 2d 10½ inches of snow fell; on the 21st only 3½, but was the most tempestuous of the winter. Hudson river opened on the 15th; had been closed 97 days; crossed by teams 85 days.

Germantown, New York.—Blue-birds on 12th; thunder-storm with vivid lightning on 15th; snow-storm on 21st, very severe, and rendering many roads impassable.

Garrison's, New York.—Month unusually mild and uniform.

New York, New York.—On 21st snow with very high wind, obstructing travel; some drifts here were 10 feet high.

Minaville, New York.—Coldest snow-storm of winter on 2d; 9.75 inches fell. Robins and blue-birds on 15th. Frost out of ground and snow gone 31st.

North Hammond, New York.—First three days of March very severe; remainder finest March weather ever experienced here.

Houseville, New York.—On 7th first thaw since Christmas; first thunder-storm on 16th.

Depauville, New York.—Till 6th wintry cold; in a few days after, the three feet of snow disappeared; ploughing commenced on the 18th and continued through the month, unprecedentedly early.

Theresa, New York.—First thunder-storm on 16th, with zigzag lightning; 27 peals were heard.

Oswego, New York.—Weather unusually fine and clear this March.

Palermo, New York.—Severe snow-storm 2d; ground dry and roads dusty 31st.

Nichols, New York.—On 18th the Susquehanna was within 3 feet of the great freshet of 1865. Ground as dry as in May, 31st.

Newark Valley.—First thunder and lightning on 15th. Farmers never had so good a run of maple sap as this season; some have sowed oats and spring wheat.

Geneva, New York.—Spring forward; ground as dry as usually at midsummer; lake low for any season; blue-birds and robins on 13th—about ten days earlier than usual. The 3d was the coldest March day in 15 years, but the average of the month was 3°.68 warmer than general.

Rochester, New York.—Most furious snow-storm of the season on 2d.

Little Genesee, New York.—The first five days temperature, each night was below zero—the 5th was the coldest day of the winter; on the 6th the first thawing since the year began; on 30th fires were running in the woods, and roads were dusty. On 5th, at 7 a. m., the thermometer stood at —22°; at 2 p. m. at 40°, a change of 62° in 7 hours; on 30th it stood at 68°, a range of 90° in 26 days.

Suspension Bridge, New York.—The "ice bridge" was formed directly below the Falls, for the second time in the memory of any now here, and was 30 feet thick. It was used as a foot bridge for more than two months, but suddenly broke up and disappeared on the night of the 15th.

Buffalo, New York.—March came in cold and stormy; the snow-storm of 2d was the severest of the winter; 12 inches fell, but drifted badly, and all snow disappeared on 15th; robins came on 13th. Excavations after water pipes on the 18th revealed frost 65 inches under ground!

Newark, New Jersey.—The snow-storm of 1st and 2d, which appears to have spread over all north of Maryland and east of Missouri and Iowa, was followed here on the 4th by the lowest fall of the barometer recorded in any March for 25 years—9 inches. On the 20th and 21st the fall was 6 inches.

Trenton, New Jersey.—First ploughing on 19th. The ground has been frozen deeper this winter than in 20 years.

Burlington, New Jersey.—Rain and heavy sleet on 2d; heavy thunder shower 17th; frost out of ground 19th; badly drifting snow-storm 20th and 21st—15 inches fell.

Moorestown, New Jersey.—First thunder shower 17th. March less windy than usual.

Elwood, New Jersey.—Wintry up to 7th; snow and ice gone, and farmers ploughing 10th; first thunder storm 17th; severe snow-storm 20th and 21st—estimated fall 20 inches, but badly drifted and travel stopped.

Dover, New Jersey.—Since the thaw on the 8th, the spring has opened favorably and advanced steadily.

Greenwich, New Jersey.—Month remarkable for cold at commencement, for sudden change to spring weather, and for a late snow-storm, unequalled for depth and severity in 11 years.

Newfield, New Jersey.—Coldest day of the winter, 2d; a drifting snow-storm on the 21st, in which 9 inches fell.

Nyces, Pennsylvania.—Blue-birds on 9th; robins 13th; thunder and lightning, without rain, 15th; thunder shower 16th.

Fallsington, Pennsylvania.—Snow-storms, blocking up roads, 1st and 2d, and on 21st and 22d.

Philadelphia, Pennsylvania.—Barometer lower on 2d, and higher on 6th, than ever observed before in March; heaviest snow-storm of the season on the 21st and 22d.

Horsham, Pennsylvania.—Severe snow storms on 1st and 2d, and on 20th and 21st; pewee heard on 11th; robin 14th; frogs 17th.

Dyberry, Pennsylvania.—The winter had 88 inches of snow, more than any winter in last 14 years. Sleighing lasted 12 weeks. March had 21½ inches of snow, of which 12 inches fell on the 2d. Good maple sugar weather from 23d to close.

Whitehall, Pennsylvania.—Drifting snow-storms on 1st and 21st. Ice on the Lehigh river 2 feet thick; broke up on 10th, and snow and ice went off quietly, without damaging freshets.

Ickesburg, Pennsylvania.—Snow on 20th and 21st, melted as it fell; frost out of ground 28th; ground barely dry enough for gardening 30th.

Tioga, Pa.—Very severe snow-storm (12 inches fell) on 2d; coldest day of winter, 3d; robins and other birds appeared 10th; severe drifting snow-storm 21st; frogs heard 27th. The last 8 days were warm and dry, and more farm work was done than in any March for 25 years.

Grampian Hills, Pa.—Snow badly drifted in some places, but no destructive storms, freshets or ice-gorges this month.

Factoryville, Pa.—Thirty-six hours of severest snow-storm of the season on 20th and 21st.

Murrysville, Pa.—Frozen rain on 2d; *very* cold 3d; crows noisy 4th; frost out of ground 12th; frogs and various spring birds heard 13th; heavy frosts 30th and 31st.

Franklin. Pa.—Snow, 11 inches, 1st and 2d; frogs heard 16th; a few flakes of snow, with light wind, 21st.

Beaver, Pa.—Most inclement snow-storm of the season 2d; coldest day this winter 3d; frost out of the ground 16th.

Newcastle, Pa.—From December 1st to 6th March, winter very uniform and ground covered with snow; last fortnight much ploughing and sowing done; wheat looks unusually fine.

Woodlawn, Md.—Snow first whitened the ground December 12th, and has been visible ever since; is now 3 feet deep in drifts; 14.5 inches fell in March.

Mt. St. Mary's, Md.—Barometer very low 2d; coldest day of the winter 3d; snow 20th, followed by rain 21st.

Surry C. H., Va.—First half of the month mild; last half wet, chilly, and disagreeable from 24th to 31st cloudy, sun not seen for 6 days; first lightning and thunder 17th; fully 4 inches of snow fell on 22d, laid 3 inches deep.

Comorn, Va.—First week cold; second warm; third very warm; fourth raw, wet, and cold; oats sown 14th to 17th; only snow, 2 inches, on 20th.

Lynchburg, Va.—On 20th, 7 inches of snow, with very little wind.

Snowville, Va.—Snow squalls, not enough to cover the ground, on 20th and 21st.

Wytheville, Va.—Tremendous storm of rain, hail, and snow all day on 2d.

Romney, W. Va.—Up to 23d very dry weather.

Cabell C. H., W. Va.—Peach, cherry, and service-berry trees in bloom on 28th.

Burning Springs, W. Va.—General rain, with lightning and thunder, 15th and 23d.

Oxford, N. C.—Peach in bloom 10th; rain, ending in snow which melted as it fell, 20th.

Albemarle, N. C.—Month remarkable for late blossoming of fruit trees; peach in full bloom on 24th, and cherries, pears, and apples not in bloom on 31st.

Kenansville, N. C.—Wind from east from February 11 to March 1, when a violent gale came from southwest, and barometer fell to 28.9, and thermometer rose to 60°.

Aiken, S. C.—Month unusually cold and season backward; but two really windy days; a few flakes of snow, 21st.

Atlanta, Ga.—Peaches and wild plums in bloom 16th, 20 days later than last year.

Opelika, Ala.—Chickasaw plum blossomed 13th, peach 18th, apple 31st; respectively 24, 22, and 18 days later than last year.

Havana, Ala.—Month remarkably mild, dry, and clear. Last frost 21st.

Jacksonville, Fla.—Only two frosts this month; vegetation forward, but rain needed.

Moulton, Ala.—Frost and ice until 5th; warm till 18th; frost 18th, 19th, and 21st; then warm till April.

Waco, Texas.—Grasshoppers have entirely destroyed some fields of wheat, and farmers are now planting them with corn; early garden vegetables all eaten by them except green peas.

Austin, Texas.—Grasshoppers doing immense damage, and will continue until their wings grow.

Grenada, Miss.—Vegetation backward till the middle of the month; since then advancing rapidly.

Marion, Miss.—Season unusually favorable; crops looking well; fruit trees loaded with blossoms and young fruit.

Brookhaven, Miss.—Vivid lightning, heavy thunder, torrents of rain and some hail on 1st; gardens fine, trees forward, 18th; ground has not been frozen deeper than 1.5 inches all winter.

Clarksville, Tenn.—Rain, with gentle wind, increasing to a gale from southwest on 1st; wind continued on the 2d.

Memphis, Tenn.—Peach in full bloom on 10th.

Elizabethton, Tenn.—Ground froze half an inch 22d; peach in full bloom 28th.

Chilesburg, Ky.—Rain with driving wind, and snow enough to whiten the ground, on 20th.

New Lisbon, Ohio.—Rain and sleet on 1st; severe snow-storm on 2d; snow nearly gone on 9th; stormy spit of snow on 21st; frost 22d, 23d, 29th, 30th, and 31st.

Steubenville, Ohio.—Very light snow on 1st; barometer unusually low on 2d; sheet lightning and sudden shower on 15th; rain, with heavy thunder and lightning, on 24th.

Kelley's Island, Ohio.—Most violent snow-storm of the season commenced with mist and rain on 1st, and closed on 2d.

Sandusky, Ohio.—Hurricane with thunder and a little rain on 17th.

Greenwich Station, Ohio.—High wind and snow on 2d and 3d; robins on 7th; frogs musical on 15th.

North Fairfield, Ohio.—Drifting snow-storm, in which six inches fell, on 2d; coldest day in the winter on 3d; killed the peaches and cherries.

Bowling Green, Ohio.—A very stormy month; only one clear day. The latter part was warm, starting vegetation finely.

Kenton, Ohio.—Severe snow-storm on 1st and 2d, commenced with rain; coldest day of the season on 2d; frost out of the ground on 14th; thunder-storm, doing much damage ten miles north, on 17th; another, fearful, with hail, on 23d.

Urbana, Ohio.—Month nearly 11° warmer than last year, and 4°.58 above the average of March for 17 years, and quantity of water more than twice the average. The great storm on the 17th did very little damage here.

College Hill, Ohio.—Thunder, wind, and rain on 17th; oldest inhabitants never saw its like for violence; its path was about a mile wide.

Litchfield, Mich.—Continuous rain from 4th to 8th, carrying away the snow; on 31st very warm and dry.

Northport, Mich.—Pleasant but very cold on 2d. March has been very fine; birds are cheerful and the prospect for fruit is good.

Copper Falls, Mich.—March unusually mild, clear and pleasant; only seven stormy days, with but little wind. The six feet of snow at the beginning is now half gone.

Vevay, Indiana.—Violent gale from southwest, with rain, on 1st; ended in a snow-storm from northwest on the 2d.

Muncie, Ind.—The rainfall exceeds that of any month since September, 1866.

Merom, Ind.—Wabash overflowed its banks from 10th to April. A few peach blossoms open, 31st.

Spiceland, Ind.—Rain on 1st, and barometer lower that in 6½ years; snow on 2d; snow nearly all gone, 5th.

Chicago Ills.—Severest snow-storm of the season, 1st; the wind blowing a hurricane in the evening. First good rain for many months, 6th.

Near Chicago, Ills.—About 11 p. m., on 16th, a violent gale from southwest, with thunder, lightning, and rain; on 24th a similar storm, but not so violent.

Golconda, Ills.—Month very forward; gardens made, and peaches, cherries, and plums in full bloom.

Aurora, Ills.—Best March for farm work in many years. Peach buds have been killed, but other fruits promise well.

Sandwich, Ills.—Severest snow storm since 1864 on 1st; continued 24 hours, and blocked up roads worse than for many years.

Ottawa, Ills.—On the 1st, snow, rain, hail, and snow again, drifting badly. Farmers sowing spring grain on 12th.

Winnebago, Ills.—Month's mean temperature 9°.63 above that of March for ten years.

Tiskilwa, Ills.—On 23d frogs and toads heard, the first time in March within my memory.

Dubois, Ills.—On 1st, rain from southeast, southwest, and northwest, successively, with high wind, thunder and lightning, and closing with snow on 2d. This spring is a month earlier than last.

Mount Sterling, Ills—Thunder-storms on 5th, 15th, 16th, 24th, and 25th—on 24th with a tornado, doing considerable damage. Grain as high as usual on June 1st.

Wapello, Ills.—From 18th to 31st unequalled in 13 years for warmth and pleasant weather. The great equinoctial tornado, that did damage 20 miles north and south of us, did not reach here.

Plymouth, Wis.—Thunder-storms on 14th, 15th, 16th, 23d, and 24th; first wheat sown 30th.

Milwaukee, Wis.—Furious snow-storm on 1st; "March comes in like a lion." Very warm and pleasant on 31st; "March goes out like a lamb." More rain this month than in any month since September, 1865.

Waupacca, Wis.—Month remarkable for mild weather; the 31st as warm as any day in May last year.

St. Paul, Minn.—Mississippi opened to foot of Lake Pepin 21st, and to the head on 24th.

Minneapolis, Minn.—Sleighing ceased on 19th; first thunder-storm 24th; wheat sown 27th; ice went out of the Mississippi 30th.

Clinton, Iowa.—On 1st furious storm from northeast; snow, rain, and snow; after that grew mild; farmers sowed a great breadth of wheat, and month closed with a week of steady northeast wind, without rain.

Monticello, Iowa.—Very pleasant month; farmers all done sowing wheat.

Guttenberg, Iowa.—In 19 years I never saw flowers open so early, nor such fine weather in March.

Near Independence, Iowa.—Month unusually warm and pleasant; nearly all the wheat sowed; there is still a scarcity of water in the wells.

Independence, Iowa.—The winter and the month have been mild. A resident here for 27 years says he never saw so fine a March for farmers as this.

Waterloo, Iowa.—The warmest March I ever knew in Iowa.

Algona, Iowa.—Most of the month quite warm and pleasant; first wheat sown on 31st.

Boonsboro' Iowa.—Myriads of grasshopper eggs hatched about 15th; since then three broods have been frozen, but now (31st) myriads more are coming out. No storms here like those in States east of us. Mean temperature of the month 7° higher than usual.

Logan, Iowa.—The warmest March in 10 years; children barefooted, and lambs cropping prairie grass.

Whitesboro', Iowa.—Wheat sowed in February, coming up on 29th; season four weeks earlier than last year.

Rolfe, Iowa.—First prairie flower *(Anemone Nuttalia)* on 31st, 36 days earlier than last year.

Allenton, Mo.—Thunder and lightning on 1st, 16th, 24th, and 25th; heavy gales on 5th, 16th, and 17th; frosts on 30th and 31st, but no damage to peach-buds.

Hermitage, Mo.—Vegetation a fortnight earlier than last year.

Oregon, Mo.—Great hail-storm on the 16th, preceded by heavy thunder and lightning. Spring wheat sprouting on 17th.

Hematite, Mo.—Six inches snow during the winter; ground frozen 11 inches, an unusual depth; frost all out on 12th.

Atchison, Kan.—First steamboat from above on 4th, and from below on 7th.

Council Grove, Kan.—An "Indian summer" month, and 21 days earlier than any March since this became a State.

Lawrence, Kan.—Snow to whiten the ground on the 1st; and a flurry on the 26th.

Elkhorn, Neb.—Month exceeded in warmth only by March, 1860; wheat and oats generally sown, and an immense breadth of the former.

Salt Lake City, Utah.—Planting going on well till 23d, when a snow-storm commenced which laid five inches deep on 24th, though much melted as it fell. It extended over a large district.

Helena, Montana.—Month unprecedented here in the memory of residents for fine weather and absence of storms. The frost is out of ground; the Missouri river opened two weeks ago, but the water is lower than last fall, with little snow in the mountains to raise it.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

MAY AND JUNE 1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

WASHINGTON, D. C., *June* 30, 1868.

SIR: I herewith report for publication matter collated for May and June upon the following topics: Condition of the crops; protection against wool-buyers; special statistics of farm resources and products; wine-growing in California; British agricultural statistics of 1867; seed wheat for the north-west; the cotton trade in 1868; American ploughs in Europe; encouragement of silk culture; and meteorology for April and May, together with a variety of extracts from letters of correspondents.

J. R. DODGE,
Statistician.

Hon. HORACE CAPRON,
Commissioner of Agriculture.

CONDITION OF THE CROPS.

Wheat.—An increase of acreage is observed, in a greater or less degree, in nearly every State. The eastern States show no increase of fall sowing, except 4 per cent. in Vermont, but the enlarged area of spring crops, which are the main home reliance for bread supplies, is very marked in Maine and Vermont; the former showing an advance of 26 per cent., the latter of 16 per cent. A very slight movement in this direction is shown by New Hampshire and Massachusetts. New York indicates 5 per cent. increase in fall acreage, with no change in spring wheat. New Jersey shows an increase of 3 per cent. of winter wheat. In Pennsylvania the acreage is very slightly enlarged—3 per cent. for winter wheat. In Delaware a reduction of 7 per cent. appears; while an increase of 9 per cent. is shown in Maryland; 11 in Virginia; 17 in North Carolina; 21 in South Carolina; 11 in Georgia; 10 in Alabama; 53 in Mississippi; 31 in Arkansas; 40 in Tennessee; 30 in West Virginia. In Texas a decrease is shown of 6 per cent., and in Kentucky of 1 per cent. Spring wheat is not grown in the south.

The increased acreage in the west, where the great bulk of the wheat crop of the country is grown, is of peculiar significance. Of the States in which winter wheat is most largely cultivated, Ohio presents an increase of 5 per cent. of that variety; Indiana 10 per cent., and Michigan 17 per cent. In portions of these States an unusual effort has been made to enlarge the area by spring sowing, showing respectively 11, 14, and 6 per cent. increase. In the States which rely mainly upon spring sown crops, Illinois indicates an increase in that variety of 12 per cent.; Wisconsin 4 per cent.; Minnesota 23 per cent.; Iowa 12 per cent.; an increase having been made also in winter wheat in the same States, with the exception of Wisconsin and Iowa, though in Minnesota the total product of fall sown wheat is too trifling to be much affected by it. The increase of winter wheat in Illinois is placed at 10 per cent.; in Missouri 50 per cent.; in Kansas 25 per cent.

An analysis of these averages will show a general average of about 11 per cent. increase in the fall sowing, and 28 per cent in the breadth of spring wheat; altogether an increase of 18 to 20 per cent. in the aggregate number of acres in wheat.

The reports of condition, for June, are generally very favorable. A promise of the best crop ever known is held out by local correspondents in many places, particularly west of the Mississippi; but such drawbacks as these are occasionally presented, proving the constant deterioration of wheat lands: "Winter grain on new land is looking very well, but there is a large proportion of wheat sown on old, worn-out land, poorly managed, and a very light crop will be the result." Many washing rains have occurred, and some complaint of falling is made. The extent of this damage, which has been more severe during the latter part of the month, is not generally determined.

Many of the most serious complaints of winter killing in Kentucky and Tennessee have been greatly modified by the subsequent growth and tillering from roots presumed to be dead. One Kentucky correspondent says: "I am compelled now to say that I never in all my life saw a greater outcome in wheat;" and this remark is applied to all the counties west of the Tennessee river.

Damage from rust has been severe in Abbeville district, South Carolina, and in Barton county, Georgia, the loss from this cause will make the crop lighter than for several years; and more or less complaint is made throughout Virginia and Maryland of appearance of rust upon the blades, which has affected the stalk but slightly in most cases, and done little damage to the crop. Similar reports have come from parts of Ohio and Kentucky. The weather, which has been so wet during the period of growth, has generally been quite propitious as the period for ripening approached.

It is gratifying to observe that some farmers are practicing upon the suggestion made in the February report relative to horse-hoeing wheat, with wide drill culture and thin seeding. Our correspondent, in Rock county, Wisconsin, is experimenting with ten acres of spring wheat, put in with a twelve-toothed drill at intervals of 18 inches, at the rate of three pecks of seed to the acre, to be carefully cultivated by means of the machine with which it was planted, used as a system of hoes, two running in each space between the drills, the one used for drilling being fastened up.

A fine crop of white Mediterranean and Tappahannock wheat, distributed by the department, is reported in Washington county, Mississippi, sown November 11, and ripe June 1, promising 35 bushels per acre.

Rye.—About the usual acreage of rye is reported. Maine is the only eastern State that fails to come fully up to the average; the Middle States have scarcely the usual breadth; and in the west, Ohio, Illinois, Iowa, and Kansas, are slightly deficient, Iowa falling short six per cent. The other western States are a little in excess of the usual sowing. The south shows about an average breadth in this crop.

Barley.—Kentucky, Missouri, and Minnesota, have given increased attention to barley, but most of the other States are either slightly below the average or barely up to it. The fall sowing, especially, was deficient in most of the western States, but the deficiency was generally made up by extra exertions in preparing for a spring crop.

Oats.—An increased area in oats, averaging seven per cent. for the entire country, is reported. The States showing the largest proportionate increase are in order: Kansas, Missouri, Arkansas, North Carolina, Nebraska, West Virginia, Minnesota, Vermont, Kentucky, Iowa, South Carolina, Illinois, Michigan, Tennessee, Virginia, Georgia, Indiana, Alabama, Wisconsin, New York, Florida, Mississippi, Ohio, Pennsylvania, Louisiana, and Connecticut. Those showing less than last year are in the order of their deficiency: Delaware, (27 per cent.,) Massachusetts, Rhode Island, Maryland, New Jersey, New

Hampshire, and Maine. Reports of condition are generally favorable; Illinois constituting the only exception of a reduced average in the west; in the south, Texas, Florida, South Carolina, and Maryland; in the east, Connecticut, Rhode Island, Massachusetts and Maine.

Clover.—It is worthy of note that every State in the Union reports an increased attention to the clover crop, with the single reduction of two per cent. in New Hampshire, and the prospect for a good crop is almost universal, Kentucky only being marked a trifle below the average.

Pastures.—Delaware and Wisconsin are the only States failing to give increased averages.

Fruits.—The appearance of apple blossoms was unusually late on the Atlantic coast, opening very fully at last, they were injured in many places by storms and unpropitious weather. In the central part of the west, bloom of orchards was not generally abundant; it was small on the Atlantic coast between New York and Georgia, with the single exception of apples; west of the Mississippi it was large, and in some localities excessive.

In Kent county, Maryland, a severe frost occurred about the 8th of May, which killed the peach crop and injured materially the prospect for apples and pears. A few orchards appear to be partially exempt from the injury, otherwise the failure is very nearly total. Similar reports, generally indicative of injury less severe, come from Maryland. The condition of peaches in New Jersey shows a reduction of 24 per cent. Michigan comes fully up to the average in condition of peaches, but the amount of bloom was less than usual. In Illinois the prospect when the trees were in bloom was better than the recent indications. On the whole, a comparatively short peach crop may be expected this year, though some localities may have a full supply.

In Lycoming county, Pennsylvania, peach trees have been winter-killed, as well as grape vines that were unprotected; quince trees are dying; and much complaint is made of the destructiveness of worms upon currant and gooseberry bushes. In Berks county apples and pears bloomed fully, but were destroyed very generally by the rain.

The fruit of Clarke county, Virginia, was greatly injured by frosts. The crop of apples, pears, and peaches in sections of West Virginia will be much reduced by killing frosts which followed the early appearance of blossoms. Much irregularity exists in the fruiting of the orchards of the Carolinas.

The correspondent from Queen Anne county, Maryland, says:

I do not think that I place fruit estimates at too low a figure. The amount of bloom was very great, but the frost of the 6th and 7th of May commenced the work of destruction. It was evident a few days after that there could not be a half crop, and since that time, the newly formed fruit has been dropping off, until very little is left. We suppose this was owing to the long continuance of cold, wet weather. An extensive peach grower, whose usual crop is from 8,000 to 10,000 boxes, told me that he did not think his entire orchard of 10,000 trees, would yield fifty boxes of fruit.

Williamson county, Texas. I have known but twice in the last ten years, when we have had such a crop of Mustang grapes. They are nearly grown and will be fit for making wine by the 15th July, and continue growing better until frost, some time in November. A very superior wine is made from this grape. I believe if all the grapes of this State that are now suffered to rot, were made into wine it would be worth more than the entire cotton crop of the State, and saved at half the expense and trouble. Two years ago I sent a barrel of this wine—my own make—to my brother, of the Massachusetts State council, who had it thoroughly tested by judges, who pronounced it a very superior wine. I have several orders for barrels of wine. I expect to manufacture largely this season, at a cost of less than fifty cents per gallon, sugar, barrels and all expenses included.

Sacramento county, California. At my Natoma vineyard, which contains 76 acres of vines, and 560 acres of land, of choice foreign varieties of grapes, I believe the yield will be 35,000 gallons of wine, and a large amount of raisins; and at my Duror vineyard of twenty acres, 8,000 gallons.

Maple Sugar.—The States giving increased attention to this production are respectively Massachusetts, (80 per cent. increase,) Vermont, (60,) New Hampshire, Wisconsin, Maine, New York, Minnesota, Iowa, and Pennsylvania.

Table showing the condition of the crops, &c., on the first day of June, 1868.

STATES.	WINTER WHEAT.		WINTER RYE.		WINTER BARLEY.		SPRING WHEAT.		SPRING BARLEY.	
	Average acreage compared with last year.	Average condition on the first of June, compared with last year.	Average acreage compared with last year.	Average condition on the first of June, compared with last year.	Average acreage compared with last year.	Average condition on the first of June, compared with last year.	Average acreage of wheat sown this spring, compared with last year.	Average condition on the first of June, compared with last year.	Average acreage of barley sown this spring, compared with last year.	Average condition on the first of June, compared with last year.
Maine	9.9	10.4	9.8	10.8	.....	.....	12.6	10.6	10	9.5
New Hampshire	10	10.3	10	10.6	.....	.....	10.2	10.1	10	10.3
Vermont	10.4	9.4	10	10.2	.....	.....	11.6	11.2	9.4	11.4
Massachusetts	10	9.2	10.4	10.1	10	9	10.2	9.6	10.1	9
Rhode Island	.....	.....	11	9.7	.....	.....	.....	.....	10.5	8.2
Connecticut	10	10.2	10.5	10	9.5	10	10	9.7	9.7	9.7
New York	10.5	10.5	9.7	10.4	9.7	9.8	10	10.5	10.3	10.3
New Jersey	10.3	10.2	10	9.7	9	9.5	9.5	10	8	9
Pennsylvania	10.3	11	9.8	10.1	9.5	10.1	10	10.6	9.9	10
Delaware	9.3	10.6	10	9	.....	.....	.....	.....	.....	.....
Maryland	10.9	12.9	9.6	10.3	.....	.....	.....	.....	10	9
Virginia	11.1	11.6	9.9	10.8	.....	.....	.....	.....	.....	.....
North Carolina	11.7	10.2	9.8	9.6	11	10	.....	.....	.....	.....
South Carolina	12.1	8.8	10	9.6	10	9.7	.....	.....	9	9.5
Georgia	11.1	8.4	9.7	9.6	9.7	9.8	.....	.....	9.3	9.3
Florida	.....	.....	10.8	.....	.....	.....	.....	.....	.....	.....
Alabama	11	8.7	9.8	9.4	10	9.3	.....	.....	.....	.....
Mississippi	15.3	10.1	10.4	10	8.6	9.3	.....	.....	.....	.....
Louisiana	.....	.....	9.5	10	.....	.....	.....	.....	.....	.....
Texas	9.4	8.2	9.4	9.8	8.3	8.1	.....	.....	8.3	6.3
Arkansas	13.1	11.2	10	10.3	10	9.6	.....	.....	10.5	10
Tennessee	14	10.2	9.9	9.9	11	10	.....	.....	10.1	11
West Virginia	13	11.7	10.3	13.7	7.8	9.7	9.3	11.5	9.5	10
Kentucky	9.9	9.8	10.2	9.9	9.4	9.2	.....	.....	11.5	11.1
Missouri	15	12.1	10.8	11.3	11.1	11.3	16	12.1	12.5	10.6
Illinois	10.4	10.7	9.6	10.7	9.6	10.3	12.8	11.2	10.1	10.5
Indiana	11	13.3	10.3	11.3	10	14.2	13.5	11.4	10.6	8.7
Ohio	10.5	11	9.9	11.1	9.8	9.3	12.2	11.1	9.7	10.3
Michigan	11.7	11.9	10.4	10.8	10.1	10.5	11.6	10.6	10.3	10.4
Wisconsin	9.9	10.3	10	9.5	10	10.2	11.8	10.4	9.7	10.4
Minnesota	11	10.1	10.2	12.2	11	11.7	13.3	12.3	11.2	11.8
Iowa	10	11.3	9.4	11.3	8.3	11	13	11.2	10.4	10.8
Kansas	12.5	11.5	9.8	10.7	9.4	9.1	14.5	11.3	10	10 6
Nebraska	8.4	7.8	10.8	9.4	10	8	14.8	10.2	11.1	10.1

Condition of the crops, &c.—Continued.

STATES.	OATS.		CLOVER.		SPRING PAST'E.	MAPLE SUGAR AND MOLASSES.	
	Average acreage sown, compared with last year.	Average condition on the first of June, compared with last year.	Average acreage compared with last year.	Average condition of clover fields on the first of June, compared with last year.	Average condition of pastures, compared with last year.	Average amount of maple sugar made this spring, compared with last year.	Average amount of maple molasses made this spring, compared with last year.
Maine	9.8	9.6	10.3	10.8	11.6	14.2	13.7
New Hampshire	9.7	10.5	9.8	10.8	10.8	15.2	15.8
Vermont	11.5	11.1	10	11.4	11.4	16	13.2
Massachusetts	9.1	9.5	10.3	10.2	10.7	18	17.3
Rhode Island	9.2	8	10.2	10.7	10.2	.....	.....
Connecticut	10	9.6	10	11.2	11.2	9.3	8.6
New York	10.6	10.8	10.4	11	10.7	13.5	12.7
New Jersey	9.4	8.6	10.4	10.3	10.2	.....	.....
Pennsylvania	10.1	10	10.3	11.2	10.7	10.3	10
Delaware	7.3	8	10	11	9.6	.....	.....
Maryland	9.4	9.9	10.3	11.2	10.9	.....	.....
Virginia	10.9	10.5	12.2	11.3	11.2	8.1	7.9
North Carolina	12.2	10.6	13	11.2	10.5	.....	.....
South Carolina	11.1	9.5	10.6	10	10.1	.....	.....
Georgia	10.9	10.2	11.9	11.4	11	.....	.....
Florida	10.6	7	.....	.....	11.6	.....	.....
Alabama	10.7	9.8	11.4	10.6	10.7	.....	.....
Mississippi	10.6	10.4	18	12	11.7	.....	.....
Louisiana	10	9.7	13.3	12	10	.....	.....
Texas	9.6	9	.....	.....	11	.....	.....
Arkansas	12.5	10.7	11.5	11	11.6	.....	.....
Tennessee	11	10.5	12.9	10.7	11.1	9.8	9.7
West Virginia	11.9	11.3	11.2	11.5	12.6	6.7	7
Kentucky	11.4	11.4	10.3	9.7	10.2	9.3	9
Missouri	13	11.6	11.1	11	11.7	8.6	8.1
Illinois	11	9.3	10.4	10.8	11.4	8.3	8.3
Indiana	10.8	11.5	10.5	11.2	11.5	5.4	5.4
Ohio	10.5	10.5	10	10.6	10.5	5.1	5.7
Michigan	11	10.8	10.5	10.6	10.1	10.2	9.6
Wisconsin	10.7	10.1	10.3	9.2	9.5	15	12.5
Minnesota	11.8	11.6	10.3	10.7	12.4	12.7	12.2
Iowa	11.1	10.4	11	11	11.8	10.7	10.7
Kansas	13.1	11.2	10.5	10.3	13.2	10	10
Nebraska	12.2	10.8	10.7	10.5	11.2	.....	.....

Condition of the crops, &c—Continued.

STATES.	WOOL.		COWS AND CALVES.		APPLES.		PEACHES.		PEARS.	
	Average percentage of last year's clip of wool still remaining in the county.	Date of annual shearing in your county.	Average condition of cows this spring.	Number of calves dropped compared with average of former years.	Average amount of apple bloom this spring.	Average condition of the crop on the first of June, 1868.	Average amount of peach bloom this spring.	Average condition of the crop on the first of June, 1868.	Average amount of pear bloom this spring.	Average condition of the crop on the first of June, 1868.
Maine	8.2	.....	9.9	9.4	11.1	9.5	.....	.....	11.5	10.5
New Hampshire	10	.....	9.9	9.2	12.5	13	.....	.....	10.5	10
Vermont	17.1	.....	9.9	10.2	11.6	12	.....	.....	10.3	10.5
Massachusetts	33.2	.....	10.1	10.6	12.8	12	9.2	10.2	8	10.1
Rhode Island	25	.....	9.2	10	12	11.5	11	10.5	10	11
Connecticut	18.7	.....	10.5	10	12.2	12	9	9	10.5	10.2
New York	18.8	.....	9.7	10.2	11.2	11	10.6	9.9	10.9	10.2
New Jersey	4	.....	9.6	10.3	12.4	10.3	9.1	7.6	9.7	8.5
Pennsylvania	12.6	.....	9.7	10.1	11.6	11	8.3	8.8	9.6	9.6
Delaware	.....	.....	9.3	9	10	8	7.6	4	9.6	7.6
Maryland	15.8	.....	9.5	9.9	11.3	8.6	9	5.8	9.9	10
Virginia	10.8	.....	9.4	9.4	9.6	8.3	7.3	5.5	8.5	7.7
North Carolina	12.3	.....	9.4	9.7	10.8	10.1	10	11	9.9	9.1
South Carolina	6.2	.....	11.7	10.1	11.4	14.7	11.1	15	10	16.6
Georgia	11.6	.....	10.8	10.2	13.7	13.2	14	16.9	9.6	11.7
Florida	10	.....	10.4	10	5	5	11	11.6	.....	.....
Alabama	15	.....	11.4	9.4	9.8	9.2	16.8	15.6	10	9.1
Mississippi	19.8	.....	11.4	11.7	14.4	15.2	20	20.7	11	10.1
Louisiana	.....	.....	9	8	8.3	11.6	10.6	18.9	10	9.6
Texas	8.6	.....	10.7	10.4	12.7	12	16.2	15.9	11	14
Arkansas	.....	.....	11.1	10.9	11.9	11.2	13.7	14.1	12	11.7
Tennessee	10	.....	10.3	10.6	12.5	9.8	13.8	8.6	12.7	9.6
West Virginia	3.3	.....	8.6	11	10.5	9.1	12.7	8	9.2	7.3
Kentucky	9	.....	9.5	10	8.8	6.5	10.7	6.4	9.4	5.8
Missouri	8.1	.....	11	10.3	10.6	8.6	15	12.7	10.1	8.3
Illinois	8.1	.....	10	10	9.2	8	11.7	9.4	9.7	7.9
Indiana	6.4	.....	10.2	10.1	8.7	7.7	12.9	12	9.9	9.6
Ohio	7.7	.....	9.4	10.1	11.2	10.2	8.5	9.4	9.6	9.5
Michigan	6.8	.....	10.5	10.6	11	10.6	8.7	10.2	9.9	10.1
Wisconsin	13.4	.....	10.6	10.3	9.1	9.7	.....	.....	8.8	9.6
Minnesota	15	.....	11.4	11.2	12.8	11.1	.....	.....	10.5	10
Iowa	10.7	.....	11.6	10.9	12.1	10.5	13.7	12.7	11.4	10.1
Kansas	11	.....	12.9	11.6	15	12.8	16.5	14.3	15	12.8
Nebraska	13	.....	11.6	11.9	10.8	9	11	9.6	11.3	10.7

EXTRACTS FROM CORRESPONDENCE.

AGRICULTURAL FAIRS.

A Louisiana correspondent, in referring to the benefits of agricultural societies and fairs, writes as follows:

The increased interest taken in our fairs affords a most satisfactory proof of the benefits resulting from the society. A large number of planters and farmers from remote parts of the State attended our last exhibition; and a general opinion seemed to exist that our efforts were destined to effect important reform in the agricultural interests of our State, the more rapid introduction and diffusion of labor-saving machinery, increased incentives to thorough tillage by the awards of premiums upon field crops, and the advantage derived from the discussion of agricultural subjects, as soils, manures, drainage, ploughing, fruit culture, &c., &c. We have endeavored to encourage the cultivation of sugar-cane and corn instead of cotton. Sugar-cane, we may say, is an unfailing crop in our State, and with good cultivation will produce three hogsheads of sugar of 1,000 pounds each, and six barrels of sirup, 40 gallons each, per acre. Louisiana sugar commands a high price in market—15 cents to 18 cents per pound, and sirup from 85 cents to $1 30 per gallon; and this high price will continue for many years. Corn has been selling at from 85 cents to $1 40 per bushel. Since our last fair there have been three neighboring farmers' clubs organized.

COLORED MEN AS AGRICULTURAL LABORERS.

Our correspondent in Greenville district, S. C., in speaking of the condition of their lands and the trouble and expense attending their restoration, writes as follows:

The land is filled with a growth of briers and young sprouts, which appear on worn-out fields. The farmer has a troublesome job before him; one-horse teams and narrow ploughs will not do the work; they only mix the soil. Double teaming, getting down to the subsoil, and turning the soil upside down, is the only way to get at the root of the evil. Harrowing the land, after ploughing in this way, pulls out the roots and exposes them to the sun.

Taking these facts into consideration, 15 acres of land, free of rent for three years, was offered, on condition that it be cleared and fenced. One colored man, with a wife and children, took this offer up. He contracted in October, 1866, and by the following Christmas day had built his house and moved into it. He cleared half the land that winter, in time to plant corn, pumpkins, sugar-cane, watermelons, peas, potatoes, and garden vegetables. He supports his family by his trade as carpenter. The following October the offer was increased to five years. This attracted the attention of four more families, who have located and built their houses. They are good axe-men and very fair mechanics. It is surprising to see what they can do in the woods with a few tools. They cut the timber for a log house in a remarkably short time, split out shingles from the trunks of large oak trees, bark the small pines for ribs, place the timbers, nail on the roof, and move in—making a fire on the ground floor; then, with rock and clay, lay a hearth, run up a chimney on the outside, split timber for a floor, plaster up between the logs with clay, dash on a coat of whitewash; then clear land, split rails, and fence in a patch, plant fruit-trees, hire out, or cultivate other lands on the shares. These strong-armed, able-bodied men are the very foundation on which the clearing-up and preparation of this land for scientific agriculture depends. Without the black man the south would turn back into a wilderness, or a sparsely-settled, wretched system of small patches.

GRASSHOPPERS.

Anderson county, Texas.—In October last the grasshoppers came upon us from the northwest in great numbers, but too late to do injury to the crops. They burrowed in the ground, and laid their eggs, which hatched in February. The young came to maturity, and left May 1st. They did great mischief in the interior, causing, at one time, apprehensions of famine; many planters being forced to plant their crops four times; but now the prospect is fair for a good crop. We are indebted to the prevailing southeasterly winds of September and October for their visit, and to the opposite current of April and May for their disappearance.

Gillespie county, Texas.—The entire crop of wheat and rye destroyed and corn badly damaged by grasshoppers, between the 17th and 20th of May.

Montgomery county, Arkansas.—The wheat was nearly all destroyed in this county last fall by grasshoppers. A few acres were sown after they left or died, say about Christmas, which looks tolerably well, for late sowing.

Montgomery county, Iowa.—The grasshoppers are using up the wheat and oats; not so bad on the corn.

Warren county, Iowa.—The grasshoppers destroyed at least two-thirds of the winter wheat, beginning their ravages about the 5th of October last. We have them here now in great numbers, yet vegetation is not much injured.

Washington county, Nebraska.—The grasshoppers are doing a great deal of damage in this county.

Dakota county, Nebraska.—The grasshoppers have hatched out in myriads. The farmers are much alarmed; some of them predict almost the entire destruction of the wheat crop.

Douglas county, Nebraska.—This has been a season favorable to the planting and growth of spring crops, but the presence of grasshoppers deterred planting to some extent. At this date they appear to threaten serious damage.

Shawnee county, Kansas.—The grasshoppers destroyed most of the wheat last fall.

Crawford county, Iowa.—Grasshoppers have destroyed all wheat sown on new ground. Fears are entertained that they will take the whole crop this season.

Madison county, Iowa.—The grasshoppers are eating some wheat on new ground; not doing much damage to other crops yet, but are numerous.

Audubon county, Iowa.—Spring wheat is our dependence, and the present prospect is very dubious, as the grasshoppers are taking all before them. Some wheat fields are wholly destroyed; corn not yet so badly eaten; gardens used up. What the result will be none can now guess.

Harrison county, Iowa.—The grasshoppers continue their ravages in this part of the west. They are still hatching out. The new-ground, or "*sod wheat*," has suffered most. They have not injured corn to any extent, nor do they eat sorghum.

Harrison county, Iowa.—The grasshoppers came here last August by the million, and deposited their eggs all over the country. These have been hatching from the first thawing of the ground, the last of April, till the present time. Those hatched earliest seemed to be killed by the cold rains, but such as have hatched since the rains are growing and eating gardens, fruit, and crops of every kind; but they are scattered alike over farms, open prairie, and groves. If they should flock to the cultivated lands there are enough of them here to consume the whole crop. Some farmers are ploughing up their wheat land to plant in corn, hoping that the grasshoppers may leave in time to permit the making of a crop of corn.

Conejos county, Colorado.—Countless millions of minute grasshoppers are here, and, in fact, throughout the San Luis Valley, and are destroying everything green as fast as it makes its appearance above ground. The farmers here have become discouraged, and have lost all hope of raising anything the present season, arguing that these minute grasshoppers cannot well leave here until they have wings, when it will be too late to raise a crop.

Utah county, Utah.—Grasshoppers doing great damage in this county to wheat and fruit trees.

Box Elder county, Utah.—Apple trees were injured by grasshoppers last summer; many bloomed the latter part of summer, when putting out new foliage, after the grasshoppers had passed.

Jefferson county, West Virginia.—The 17-year locusts are beginning to make their appearance.

De Kalb county, Alabama.—There are millions of locusts in our forests, the same species that we had in 1856, I think it was.

Springtown, San Pete county, Utah.—Last fall we were visited by vast numbers of insects of the locust tribe, here commonly called grasshoppers; but, I think these insects are almost identical with the red-legged locust, as described by most writers on natural history. They ate off almost everything in our gardens and much from our grain fields; nothing seemed to come amiss to them—not even tobacco plants. In some few instances peas, beans, potatoes, tomatoes, squashes, and such like were rejected by them, or rather let alone, chiefly, we presume, because the vines were old and tough. They laid their eggs and took their flight westward. About the middle of April the eggs began to hatch out, and the young ones are now flying about, devouring our young crops of every description. In some few cases where they made an early attack the grain is beginning to grow again. Judging from appearances, I should say that at least two-thirds of this year's crop has been destroyed by them.

Austin county, Texas.—Already, in confirmation of my fears, comes advice from two eye-witnesses, of the ravages of grasshoppers in Washington and Fayette counties. In the former, they devour all the corn sprouting, and owners hesitate to replant, being afraid of a repetition of the visit. In Fayette county the gardens have been destroyed by the grasshoppers, the plants dying off. On the sixth of April there was a heavy thunder-shower, which destroyed many of the grasshoppers.

Red River county, Texas.—I regret that I cannot make a more favorable report with regard to wheat. Large quantities were sown and it looked unusually well; but on the first day of November, suddenly the sky was darkened partially, and immense numbers of grasshoppers settled on the country; so numerous, indeed, that in a very few days they ate up all green vegetation, first destroying the wheat. I have been living here for twenty-five years, and never knew of such a visitation before. We all continued to sow wheat as long as there was any seed, believing that a good frost would destroy the grasshoppers; but they proved to us that they could not only endure a heavy frost but a considerable freeze. They continued until about Christmas, when a severe freeze of several days' duration destroyed them, but leaving the earth filled with their eggs, and innumerable young ones are now making their appearance, which may destroy our spring crops before they can fly away to the country from whence they came, which I understand is their habit. The destruction of the wheat crop is a very heavy loss to the country at this time, when struggling to rise above the grasp of poverty caused by the war.

POTATO BUGS.

Ford county, Illinois.—As there was a great loss in potatoes by the potato bug, I send you some of them, that you may see them. They seem to be of recent origin here. Those that we have had in years past were larger and as long again. The prospect is that but few will plant potatoes, as they lost their crops last year. I send some of the eggs as they appear before hatching.

[The eggs enclosed are those of the ten-lined spearman, or *doryphora 10-lineata.*]

Columbia county, Wisconsin.—The potato bug (*ten-lined spearman*) have made their appearance in large numbers, and the prospect of a crop is not good at this time.

Fond du Lac county, Wisconsin.—Potato bugs have made their appearance in great numbers. The Ripon Farmers' Club are making many experiments for their destruction. Should any good derive from these experiments, I will report them to the department.

Jackson county, Wisconsin.—Potato bugs are very bad.

STORMS.

Kendall county, Texas.—On the eve of the 19th we were visited by a hail and wind storm, which injured all kinds of grain, unroofed houses, uprooted trees, and doing much other damage. Some of the hail-stones weighed from one to four pounds. The storm embraced a belt of about 14 miles from north to south, exhausting itself in the Gulf of Mexico.

Whiteside county, Tennessee.—A severe hail-storm on the 6th instant—stones of the largest size, averaging $1\frac{3}{4}$ inch in diameter; none smaller than half inch, and many as large as two and a half inches in diameter.

The shower continued for 12 minutes, accompanied with heavy rain and continued thunder. The atmosphere had a yellowish green appearance. Thermometer fell 22° in 30 minutes. In extent this storm was very limited, covering an area of about four miles in width, and fell among the mountains for about five miles; consequently the damage to crops was but slight.

Morgan county, Georgia.—The great freshet, accompanied by wind and hail, which swept over this county on the 12th of May, seriously injured crops, and washed many acres of land away into the bottoms of rivers and creeks. It washed up and buried with sand several acres of my best cotton land.

CONDITION OF CROPS.

Tatnall county, Georgia.—There has been a considerable increase in acreage planted in corn the present season and less of cotton. The raising of rice sufficient for home consumption is now attracting the attention of farmers, and the prospects are very promising. Land that will produce from eight to ten bushels of corn to the acre will yield double the quantity of rice. Prior to the late war we could purchase rice at four cents, consequently the farmers in this section of country could well afford to purchase; but now they find it more profitable to raise it than to purchase at 12 cents per pound, which is about the average price.

Pike county, Mississippi.—This year much more attention has been paid to the raising of vegetables, and our gardens are in prolific bearing. Some of the seeds received from the department are proving great additions to our varieties. The breadth of land in corn is greater than usual and it is promising well. About the same acreage, or nearly so, is planted in cotton as last year; so far it is promising. The distinctive feature of the present crop is that, with the exception of meat, the county will raise everything that it will consume; the cotton will be its surplus.

SHEEP.

Berkshire county, Massachusetts.—In April many sheep were lost from grub in the head, and general weakness, the latter probably the result of long confinement.

Vinton county, Ohio.—Our loss in sheep has been from grub in the head. If any of your correspondents know a remedy we would like to know it.

Giles county, Tennessee.—The dogs, "curs of low degree," have played havoc with the sheep. Oh for a dog law! A neighbor of mine lost 35 fine south-downs in one night, among them two bucks worth $100 each, either one worth more than all the dogs in the county.

THE DAIRY.

Orleans county, Vermont.—The dairy business is the leading interest, and is gradually increasing. We keep more cows and keep them better than formerly. Twenty-five years ago 100 pounds butter to a cow was called a good yield; now 200 and even 250 pounds to a cow are sold from a dairy of 10 or 20 cows. But little cheese is made in this county.

IMMIGRATION.

A casual correspondent writing from Santa Barbara, California, says:

The lower coast country of the State, settled since 1770, and for a long time neglected, is now receiving a large accession of farming population of Americans and Germans; some 30,000, it is estimated, have come in since last summer between Monterey and San Diego. Below Point Conception every one of the Mediterranean fruits and plants are cultivated, as well as in Italy or Syria, and wheat and barley of No. 1 quality.

SPANISH FEVER.

The following is from our reporter in Ralls county, Missouri:

As early as 1853, a large trade in Mexican and various grades of Spanish cattle was established, and many enterprising stock men of this county engaged in it. In the latter part of the spring following a fatal disease, called Spanish fever, broke out in those sections of the country where these foreign cattle had been kept in the preceding fall, confined entirely to the native herds. This scourge soon ran its course in 1854 and disappeared; but in each succeeding year the same trade was continued, followed by the same special developments until 1858, when it seemed not only our native stock but the foreign also were smitten with this terrible malady. Not only cattle but horses and sheep also seemed in this year liable to the contagion.

The type of the disease was alike, and the same symptoms and fatal results followed. An acute inflammatory fever, with loss of strength, flesh and appetite, with wildness, in some instances amounting to madness, were the general symptoms. No certain remedies were found, though among young animals good nursing and shelter, if quiet and rest could be secured, would generally avail. The wide-spread disaster, endangering the whole stock of the county, in 1858, put an end to the trade without any special effort. Since that time we have not been troubled with Spanish fever as an epizoötic. There was one peculiarity to be observed in the spread of the disease; it never crossed a considerable stream except with the Spanish cattle, so that one side of a river might be infected and the other healthy. Ordinarily, too, it was confined to the prairie, and water-courses passing through or near it, rarely, if ever, penetrating an extensive wood region. Thus, in this county, in the Mississippi belt of timber, averaging some 15 miles in breadth, a case of Spanish fever in epizoötic form is unknown; and so of Salt river belt, a timber region of from four to six miles in breadth.

MINERALS DISCOVERED.

Jackson parish, Louisiana.—Mr. Kent M. Dowden, of Indiana, has been prospecting in our parish, and has discovered good lead ore and coal, specimens of which I will send you as soon as an opportunity offers. He has also traced a belt of curious land which extends nearly the entire length of our parish, and is not in any place more than three miles wide, in which he finds whole trees of large size completely petrified. The subsoil of this belt is red clay, and on top of that is 28 or 30 inches of alluvial, and the petrifactions appear to be between the alluvial and the clay. The present growth of timber is pine forest and oak, with heavy and thick undergrowth. Mr. Dowden has specimens of these petrifactions, which will also be sent to you as soon as possible.

PROTECTION AGAINST WOOL-BUYERS.

The isolation of farmers favors imposition by combination for the purchase of their products; and in nothing do they suffer greater injustice than in the arbitrary rules either tacitly agreed upon or adopted openly in convention by professional wool-buyers. The evil has been growing, until its proportions are now monstrous and unendurable; and it becomes necessary, in the present unprofitable era in wool-growing particularly, that this department should use its influence in opposition to injurious combinations.

The Woollen Manufacturers' Association of the Northwest met in Chicago on the 19th of February last, and adopted the following preamble and resolutions:

Whereas it is for the interest of both the grower and manufacturer of wool, as well as a protection to the honest grower, that a uniform standard should be adopted throughout the

west, as to condition and manner of putting up fleeces, and deeming it important that uniform rules, so far as practicable, be adopted by the buyers and manufacturers of the west; it is

Resolved, That the members of this association will be inevitably [invariably?] governed by the following rules in the purchases of fleece wool made by them, and respectfully invite all western dealers to conform to them, viz:

1. Merchantable wool shall be the standard for price, and shall be well washed, free from tags and all filth, and tied with only what twine is sufficient to hold the fleece compactly together.
2. On all unwashed fleeces, fleeces stuffed with tags, murrain wool, or any other foreign substance, black fleeces, and all washed buck fleeces, a deduction of one-third shall be made
3. On unwashed buck fleeces a deduction of one-half shall be required.

April 19, 1867, a convention of wool-buyers, held at Rochester, New York, adopted almost identical rules. The Ohio State buyers' association passed similar resolutions last year, and have recently reaffirmed that action.

June 2, 1868, a convention of wool-buyers at Detroit adopted the following resolutions:

1. A deduction of one-half on greasy and gummy unwashed buck fleeces.
2. A deduction of one-third on heavy washed buck fleeces.
3. A deduction of one-third on all other unwashed or partially washed fleeces, and on cotted wool, and on unconditioned fleeces made unmerchantable by stuffing with tags and dead wool, or by an excessive use of twine, and on fleeces that have been divided for the purpose of deceiving the buyer.
4. In purchasing wool thus prepared for market, to pay a price proportionate to its relative worth as to texture, strength, and other desirable qualities.

To the first rule of the Woollen Manufacturers' Association, so far as it honestly opposes the practice of including excessive filth, dirt, and tags in fleeces, there is no objection. All attempts at cheating in putting up wool are highly reprehensible, and should be frowned upon by all honest men. There is a vast improvement, however, in this respect within a few years past, and few complaints of dishonest practices have reached the department.

Of the remaining rules it can only be said, no more palpable cover for fraud could be framed; no more direct invitation to swindling could be addressed to the dishonesty of the buyer. It is not pretended, after such deductions, that a uniform price shall be paid for all classes of wool; discriminations in price may also be added *ad libitum* to such deductions. It is proper that quality and condition should modify price in wool, as in beef, butter, or other product; but a deduction of one quarter of beef because it is grass-fed rather than corn-fed, or one-third of the weight of butter because it contains too much salt or too much buttermilk, would be arbitrary and inadmissible.

All unwashed fleeces of Merino rams of pure blood may be claimed to be "greasy," and so subject to one-half deduction, whether the oil or yolk shall weigh one pound or five; and all similar washed fleeces may be held to be "heavy," and, therefore, relentlessly reduced one-third, whether the loss in scouring shall be 30 per cent. or 60; an ounce too much of twine in a fleece of six pounds must be punished by confiscating two pounds; any fleece not absolutely clean may be declared "partially washed," and placed in the same category with the dirtiest unwashed; and the presence of 5 per cent. of cotted wool must be atoned for by the absence of 33 per cent. of net returns.

These rules apply as well to an unwashed Cotswold fleece, that shrinks in cleansing but 30 per cent., as to a Merino, that loses 70 per cent., so that the same deduction is required upon two fleeces, weighing each 14 pounds, unwashed, one of which loses 9.8 pounds, and leaves 4.2 pounds of cleansed fibre, while the other loses but 4.2 pounds, and leaves of cleansed wool 9.8 pounds. And similar if not equal disproportion exists among grade Merinoes. And yet such rules are assumed by interested parties to be "for the interest of both grower and manufacturer of wool," and "a protection to the honest grower;" and such arbitrary and fraudulent regulations constitute the "uniform standard" to be adopted throughout the country.

It may be difficult to prevent altogether this injustice, but it is time that wool growers should, individually and by private understanding, unitedly, and, if necessary, by direct vote of neighborhood meetings, refuse to sell under these rules. If they will thus take the trouble to unite and act in concert, not to fix abitrary prices of wools, but to prevent gross injustice to themselves, buyers will quickly conform to their views and pay prices in proportion to quality and condition.

Harmony between buyers and sellers of wool is desirable, but not at the expense of producers. Eternal discord must result from such injustice, and eventual harmony can only come by fair and equal dealing. The buyers, like other carriers and go-betweens, may be a necessary evil, eating up the substance of producers, but proving a convenience in marketing and collecting; but farmers should neither themselves combine to do injustice nor suffer combinations to filch from them the proceeds of their industry.

SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

Continued.

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?

2. What is the average value of wild or unimproved tracts of land; and what are the character, quality, and capabilities of such land?

3. What marked or peculiar resources have you in soil, timber, or minerals; and what is the state of their development, or inducement for attempted development?

4. What crops, if any, are made a specialty in your county; and what facts illustrating their culture, quantity, and the profit derived?

5. What kinds of wheat are cultivated; and which of them are preferred; and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?

6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?

7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

OHIO.

1. With but two exceptions all the counties of this State, making returns, report an advance in the value of farm lands since 1860, the general average showing an increase of from 30 to 35 per cent. as compared with the last census. Hardin county, in the interior, and Ottawa, on Lake Erie, report an increase of 100 per cent.; Lorain and Jefferson, 75 per cent.; Athens, 60; Lucas, Hancock, Sandusky, Licking, Tuscarawas, and Highland, 50; Wood, Warren, Erie, Columbiana, 40; Clark, Greene, Medina, Fairfield, Wayne, Carroll, Holmes, Jackson, and Fayette, from 30 to 35; Williams, Fulton, Henry, Mercer, Butler, Ashland, Marion, Union, Geauga, Wayne, Starke, Morgan, Vinton, Lawrence, Ross, from 20 to 25; Logan, Seneca, Portage, and Washington, 15 per cent. Huron reports no change since 1860, while our Wyandot correspondent alone reports an actual decline.

2. About one-third of the counties report no lands under the head of "wild or unimproved;" others have but little of that class, while the values of those reported average from $15 to $20 per acre, the lowest average for any county

returned being $6 per acre. In Williams county, in the northwest, these lands are slightly rolling, covered with a thrifty growth of beach, sugar, ash, elm, oak, hickory, walnut, basswood, poplar, &c.; soil chiefly a sandy loam, interspersed with limestone gravel, rich in quality, and capable of producing heavy crops of wheat, corn, oats, grass, &c. Fulton, timbered land; rich clay loam and sandy oak openings, suited to wheat, corn, &c. Lucas, lands generally good; soil variable, from rich vegetable mould to light sand, the bottom lands very productive; the high lands especially adapted to fruit; prices range from $5 to $100. Wood, heavily timbered mostly; excellent soil; surface nearly level; productive when cultivated. Henry: the greater part of this county is included in the famous "Black swamp," reaching over an extent of 120 by about 40 miles, said to be unsurpassed in the State for fertility of soil; surface high and level, with dense growth of forest trees; soil from 3 to 12 inches deep, composed of decayed leaves and vegetable matters; subsoil a yellow clay loam, rich in lime, potash, and silex. Hancock, wild lands; generally poor quality; good capabilities for pasture. Hardin, quality of land from good to best, the larger portion very rich; will grow all the crops grown in that latitude. Logan, large tracts in the "Virginia military reservation" are held by non-residents. Van Wert and Clarke, timber land; rich, deep soil, best adapted to grazing, but will produce the cereals. In Ottawa, on Lake Erie, the wild lands are chiefly marsh and timber, there being not less than 20,000 acres of marsh in this county, valued at $1 to $5; the timber averages $20 per acre; soil excellent. In Sandusky, also, these lands are wet, but suited to grain when drained. Lorain, less than 500 acres of wild land; marsh; rich muck, one to three feet deep; needs ditching, when it will produce grass, corn, and potatoes. Marion, mostly timber, worth $30 per acre. Union, soil a loomy clay; no swamps; when cleared is good for grain and grass. In Stark, with the exception of 1,000 or 1,200 acres of tamarack swamp, the timber lands are owned in small tracts attached to farms. Morgan, well timbered; soil rich; in some parts of the county the surface is broken, but abounds in coal, petroleum, and salt. Washington, the unimproved land is of the poorest quality. Athens, mostly inferior for cultivation, but affords good pasturage for sheep and cattle. Vinton, most of the wild land is poor and rough, though there are some good lots held by speculators; there is excellent timber on the land; light alluvial soil, adapted to stock-raising and fruit culture. Jackson, hilly and broken; thin sandy soil, capable of producing corn, wheat, oats, fruit, pasture, &c. Lawrence, wild land; broken and hilly; well timbered. In Fayette the unimproved lands are equal in fertility to the improved lands, but require draining. In many counties the only unimproved land reported is in wood attached to farms and reserved for fuel, fencing, and building purposes.

3. Beside the rich and generous soil which renders Ohio pre-eminently an agricultural State, she is possessed of great mineral wealth, and is still rich in timber in many sections. Iron and coal of superior quality and in great abundance, the former being reported in Lucas, Lorain, Columbiana, Jefferson, Tuscarawas, Athens, Vinton, Jackson, Lawrence, &c.; and the latter, in Lucas, Medina, Portage, Wayne, Stark, Columbiana, Carroll, Jefferson, Tuscarawas, Holmes, Morgan, Washington, Athens, Vinton, Lawrence, and other counties. It has been estimated that the amount of iron ore along the course of the Little Beaver, from three miles above New Lisbon, would be equivalent to a continuous bed ten feet thick on both sides of the stream to its junction with the Ohio river. In Jackson and Lawrence counties, in the southern part of the State, the iron interest is quite extensive, each county having 13 furnaces in successful operation.

In most counties the coal mines are not worked beyond the requirements for furnaces and domestic use, though the deposits in some localities are almost inexhaustible and of superior quality. In Vinton the veins are from two to five feet thick, and in Athens they are said to be six feet in thickness, accessible at a

moderate depth by shafting, the latter, known as the "Hocking coal," claimed to be the most extensive and important coal-field in the State. A vein underlies the city of Steubenville, in Jefferson county, and is supposed to extend over a large area, now in use for smelting purposes; the vein is four feet thick, and about 200 feet below the surface. There are four shafts, one in the city and three immediately below, now taking out from 3,000 to 5,000 bushels of coal each per day, and two shafts, a short distance below the city, have recently been put in operation. In the vicinity of New Lisbon, Columbiana county, there are seven strata of bituminous coal, varying in thickness from one to seven feet, the coal being considered as good as the best Pittsburg coal.

Abundance of limestone is found in Fayette, Highland, Lawrence, Jackson, Holmes, Tuscarawas, Stark, Marion, Erie, Ottawa, Warren, Hardin, &c.; sandstone, freestone, and other varieties of building stone are found in Columbiana, Jackson, Holmes, Erie, Butler, &c.; fire and potter's clay in Jackson, Vinton, Holmes, &c.; salt in Jackson, Athens, Morgan, Tuscarawas, Columbiana; saltpetre and copperas in Jackson; a superior quality of grindstone in Lorain; plaster of paris in Ottawa; chalybeate in Warren; peat in Logan, and ochre, now being worked, forming a body for paint and for exposed work, said to possess much merit.

Our Henry correspondent says:

The most marked peculiarity of our resources is in the fertility of the soil, its adaptation to the staple agricultural products of the temperate zone in the order named—maize or Indian corn, wheat, rye, oats, potatoes, clover, hay, buckwheat, fruits, (apples, pears, peaches, grapes, cherries, strawberries, and all the small fruits,) and the convenience of transporting all these products to a good market at Toledo, Ohio, where the price of wheat and corn is generally 15 cents per bushel less than at New York city. The modes of transportation are the Wabash and Erie canal, running through the centre of the county, six feet in depth, 40 feet bottom, and 60 feet wide at surface of water, connecting the waters of the Wabash with Lake Erie; also by the Miami extension canal to Cincinnati. Freight per canal to Toledo, distance 40 miles: for corn 4½ cents per bushel, in bulk; wheat 5 cents per bushel; other freights in proportion. The canal affords an unlimited water-power for all kinds of machinery at low-water rent. The other mode of travel and conveyance for freight is the Toledo, Wabash, and St. Louis railroad, 40 miles to Toledo, connecting there with numerous railroads to all points. Freight one cent more per bushel than by canal. One of the largest bodies of good oak timber in the State has been in great demand for ship timber and staves. As an evidence of the size of the trees, I need only say that the average number of squared feet in a tree is 90 feet. Our forests abound in elm, sugar-maple, shellbark hickory, black and white walnut, basswood, cottonwood, black and white ash, white wood or yellow poplar—the last three varieties pretty much used up.

In Hardin great trade is carried on in timber, in the form of lumber (staves, spokes, railroad ties) and wood, (hoop-poles, &c.,) and there are but few better places for steam saw-mills, shingle and lath mills.

There are six iron furnaces in Vinton in successful operation; also a number of saw-mills, making a good deal of lumber, which is worth from $1 50 to $2 per hundred. There are also several potteries, where a large amount of stoneware is made and sent in all directions.

The Athens observer writes:

Heretofore the Hocking canal has been the only outlet, and operations in coal, thus far, have been confined to a few parties situated in nearest proximity to the canal, by whom from 80,000 to 100,000 tons of coal per annum have been sent to market since about the year 1860. The excellent quality of the Hocking coal is now well established, and the extent of the mines—six feet in thickness, accessible at a moderate depth by shafting—leads to the conclusion that this is the most extensive and important coal field in the State of Ohio. The Mineral railroad, now about completed, from Mineral station on the Marietta and Cincinnati railroad, commands access to this extensive coal deposit, and preparations are already made for transmitting coal from this source to Cincinnati and intermediate points. The Hocking Valley railroad, from Columbus to Athens, which will be completed next season, will furnish another outlet for the central portion of this valley by the Marietta and Cincinnati railroad and its connections at Athens. Measures have been taken for the continuation of the Hocking Valley railroad from Columbus to Toledo, furnishing direct communication with the northwest.

For more than 20 years about 50,000 barrels of excellent salt have been made annually in Athens county. Salt water, varying in strength from six to nine per cent., is found in several localities by boring from 600 to 800 feet deep, and the brine thus obtained is speedily reduced to salt by the use of coal, generally conveniently at hand.

In Morgan one salt well deserves more than a passing notice. The salt water is thrown up 16 to 20 feet above ground into tanks and reservoirs by the gas which is retained in a large inverted reservoir (above the salt water basin) and conducted in a tube beneath the furnace and salt kettles, furnishing the only fuel used for evaporating the salt at these works. It is just across the river from McConnellsville, near the lower ferry, and is the great curiosity of salt-making in our county. The well has never required pumping. The gas was not much used as fuel until within 12 or 15 years.

Sandusky county:

We have large quarries around Sandusky and on the islands of a fine white limestone, which can be quarried almost any size used in building, and is shipped largely to other lake ports and burnt into lime. We have also large quarries of a good, hard blue limestone around Sandusky, which is suitable for range work, and is extensively used for building purposes. There is also an abundance of soft white limestone in Margaretta township, six miles from the lake, and fine sandstone in the eastern part of the county, valuable for building purposes.

John M. Milliken, of Butler county, writes:

Our resources are found in our rich, productive soil, valuable timber, abundance of stone; in the number of our creeks and rivers, affording abundance of water for stock and for the construction of extensive hydraulic works in our favorable geographical position and temperate climate, being generally exempt from extremes of heat or cold, excessive droughts or long-continued rains. Our resources are exceedingly well developed, having the advantages of three railroads passing through the county, the Miami canal, which extends from Lake Erie to the Ohio river, and some 15 turnpike roads, which thoroughly ramify the county.

4. The agriculture of Ohio is general and varied; the farmers generally produce the cereals, the domestic animals, and give some attention to fruits. While this is true, it is also patent that certain sections of the State give greater prominence to one branch of production than to others; thus the dairy interest is prominent in the first and second tiers of counties from Lake Erie, from Sandusky eastward. Immediately upon the lake shore, and on the islands towards its southwestern borders, grape-growing is the prevailing industry, peaches also being abundant in favorable seasons. In the Miami and Scioto valleys corn is the leading product, sold principally in Philadelphia and New York in the form of beef. In the eastern and southeastern portions of the State a greater variety of production obtains, the leading interest now being wool-growing, which has for a few years past become an important branch of farming in all parts of the State. Wheat is grown in all portions of the State, but most extensively in the western and southwestern portions, the heaviest production being found in Brown, Butler, Champaign, Clark, Clermont, Cuyahoga, Greene, Hamilton, Hancock, Highland, Huron, Miami, Montgomery, Muskingum, Pickaway, Preble, Ross, Seneca, and Warren. Many counties report corn and hay as the principal products, both fed to beeves. A weekly stock train of 10 to 20 carloads of cattle for Baltimore, Philadelphia, and New York is reported as an agricultural incident common in Fayette. Lucas claims for her best farms a yield of 75 bushels of corn per acre, and two tons of hay. In Clarke "the cereals are all profitable." In Lake potatoes may be considered a specialty and are very profitable. In Union "one-fourth the land is in corn, and one-half in grass." In Seneca the cost of growing corn is placed at 50 cents, and of wheat at $1 per bushel.

Our Medina correspondent says:

Tons upon tons of hay were annually pressed into bales and shipped off to enrich other parts of the country, and our own fields sadly show the effects of such a course; but now, instead of exporting grain as we did then, we import our flour, some corn, and other feed for our stock.

5. The kinds of wheat mentioned in returns are the White and Red bearded and bald varieties of the Mediterranean, "Lambert or weevil-proof," Lancaster, Tappahannock, Diehl, White Siberian, Soule, and Blue Stem. The prefer-

ence is given to the Mediterranean in Greene, Washington, Clarke, Lorain, Medina, Jefferson, Licking, Wayne, Highland, Henry, Union, Sandusky, Logan, Hancock, Carroll, Columbiana, Stark, Fairfield, Miami, Tuscarawas, Erie, Warren, Fayette, Ottawa, Ross, and Lawrence; for Weevil proof in Van Wert, Marion, Williams, Vinton, Jackson, Mercer, Athens, Holmes, and Hardin; for Tappahannock in Portage, and for Blue Stem in Morgan. In Fairfield a wheat known as "Pennsylvania Red" was last fall sown to the exclusion of every other kind whenever it could be obtained, for the reason that it was found in the summer of 1866 to have survived the frosts of the previous March, which destroyed nearly all of other varieties. In Highlands a wheat called Red Chaff Mediterranean is most cultivated. It was brought from Chester county, Pennsylvania, seven or eight years ago; is not liable to be winter-killed nor subject to the ravages of the weevil. The "yield is from 10 to 30 bushels per acre, according to culture." Nearly all is drilled, except where sown among corn, and sometimes even then by a one-horse drill made to pass between the rows of corn.

The period of sowing commences about September 1; in one or two cases an earlier date is given, and in a few others September 5, 15, and 20 are mentioned; the average of the returns is September 9. The termination of the season for seeding is given variously; September 20th being the date most frequently reported, the 15th and 30th also favorite dates, a few naming the 25th, and a small number October dates, from the 7th up to the 30th; the average might be placed at September 24. The time of harvesting winter wheat averages from July 1 to July 12; in the southern part of the State June 25 to July 5, and in some counties in the north July 4 to 15, are average periods for harvesting. The reporter in Warren county gives June 15 to July 1, the earliest period indicated. From about half the counties of the State the proportion of acreage drilled is reported. Were the product the same in each county, less than 30 per cent. drilled would be indicated; but taking into consideration the fact that the best wheat counties show the largest proportion of drilling, the true average of the returns would show about 40 per cent. put in with the drill. The influence of agricultural implement establishments is shown by reference to Stark county, where "nine-tenths" is drilled, or to Clarke, from which "two-thirds" is the report. Among the counties putting in half or more than half of the seed by machinery are Greene, Marion, Montgomery, Clarke, Seneca, Licking, Fairfield, Highland, Butler, Miami, Erie, Warren, Fayette, Ross, Wayne, Hancock, and Stark, while Van Wert, Washington, Wood, Lorain, Williams, Fulton, Lucas, Portage, Tuscarawas, Mercer, Ottawa, Athens, Hardin, Wyandot, Henry, Sandusky, and Carroll drill less than half; Geauga returns "small;" Medina "can't afford to drill;" Vinton and Jefferson "but little;" Morgan "very little," and Jackson "none." The mode of culture is various. A few counties will indicate the modes practiced in others. In Miami, where three-fourths is drilled, the ground is "well ploughed, harrowed, and rolled." In Ross wheat is principally drilled in corn land without ploughing, but stubble land is ploughed. It is a practice in Jackson to plough in June, and again in September, sowing broadcast and covering with the harrow. In Ross clover sward is ploughed, rolled, and drilled, or oats stubble manured and ploughed, &c. In Henry preference is given to clover over bare fallow, though newly cleared land is employed by many, and others sow in standing corn and cover with a shovel plough.

6. The natural grasses reported, blue grass, June grass, and red-top. White clover abounds, but is displaced with red-top as far as possible. Timothy is also seeded in pastures when practicable. The average period of pasturage lacks little of seven months, and the price per season averages $8 50.

7. Ohio has more than an average share of fruit, though its different sections have widely different capabilities. In the settlement of the State, and until

within a few years past, apples and peaches grew without care and fruited profusely; but in the central and southwestern counties, except on the margin of the Ohio and other streams, destruction by frost is the rule, and general exemption from injury is now the fortunate and rare exception. Among the hills of the east and southeast apples are a moderately sure crop, and peaches are occasionally obtained in abundance. The forests of the western part of the State are good locations for apple orchards; and the grapes and peaches of the lake shore have obtained a general notoriety.

D. C. Richmond, of Sandusky, estimates the acreage in grapes in Erie county at 3,000, and a yield of wine of 250,000 gallons, last season, of which the Kelley's Island Company made 63,000 gallons; that some single acres have produced four tons of Catawba grapes; that the must averaged from 85° to 100°. He claims that this region is equal to any other east of the Mississippi for grape-growing, but thinks many people with high expectations will be disappointed, in consequence of mildew and rot in wet seasons. A want of a good wine grape is expressed, the Catawba being too acid. Experiments with the Norton, Ives, Iona, and others are being made. The fruit crop in this county yields more revenue than the grain crop.

Our Wood reporter has an orchard of 50 acres in young apple trees, which yields him usually about $3,000 worth of apples, delivered in Toledo market, eight miles distant.

Apples are best adapted to the soil and climate of Carroll, and considerable quantities are shipped from the county.

Apples are the principal crop in Wayne.

In Licking the apple is esteemed the most profitable of the fruits, the grape coming next in order.

In Portage it is claimed that $500 per acre is but a medium estimate for grapes, (Concord and Rogers's hybrid.)

In Tuscarawas the curculio, next to the wheat-midge, causes more loss than any other insect tribe. Grape culture is increasing there, but its success, owing to rust or mildew, is deemed problematical.

One hundred bushels of apples per acre is a common average in Ottawa, and prices average about 60 cents per bushel.

Much attention is being given to grape-growing in Lorain. Vineyards have been planted on the lake shore, some few coming into bearing. Upwards of 400 acres are now planted. Price of vineyard land previous to improvement is from $150 to $175 per acre; cost of improvements, about $55 per acre.

Our Henry county correspondent gives the following account of the production and profit of his orchard of 150 apple trees, planted in 1848, and about the same number of peach trees, planted in fence corners around the orchard and intermediate between the apple trees—premising that the past season was not the regular apple year with that orchard:

1867.—ORCHARD.

Dr.		*Cr.*	
To picking 222 bushels, at 4 cents	$8 88	By 132 bushels apples, at 75 cents	$99 00
To making 4 barrels cider	2 00	By 40 bushels apples for family use	30 00
To taking dried fruit to market	3 00	By 50 bushels apples, late-keepers, buried, worth $1	50 00
To 10 per cent. interest on value of 3 acres	15 00	By 6 bushels dried apples	10 56
		By 27 bushels dried peaches	80 64
		By 30 bushels green peaches	9 00
		By fruit canned and used	10 00
	28 88		289 20
		By 128 gallons cider vinegar, at 25 cents	32 00
			321 20

Our Lucas observer had about 400 bushels of choice apples, and sold them for $3 per bushel at the orchard, to be shipped east. The orchard had 30 acres, the trees about 20 years old and remarkably thrifty.

Our Fulton correspondent has an orchard of four acres—trees 30 feet apart, set 20 years; kinds, Rhode Island greening, Spitzenberg, Tulpahocken, Vandeveer, Rambo, Holland pippin, strawberry, and early harvest—that has produced 250 barrels average for eight years. Sold in orchard at $12 to $15 per barrel, net.

In Seneca all kinds of fruit do well except plums and peaches, the curculio destroying the plums and the frost the peaches, though a fair peach crop is enjoyed once in five or six years.

In Logan the apple, in its several varieties, is the most successful fruit crop, and is deemed the only one that can be relied upon. The Rhode Island greening, bellflower, and winter pippin are preferred.

It is reported of Miami that apples and peaches, which were formerly sure and abundant crops, are now obtained from abroad, while pears, which were wont to blight, now produce well.

INDIANA.

1. This State shows an increase in the value of lands in a majority of the counties reported, averaging 27 per cent. In some parts of Brown the increase has been 100, and in Warren and White 75 per cent. Carroll and Switzerland report an increase of 50 per cent. up to 1864, and since that date a decrease of 20 and 30 per cent. DeKalb, until 1864, was about the same as in 1860, but now shows an increase of 25 per cent. Steuben, the northeastern county of the State, without railroad advantages, reports an increase of 20 per cent., with a steady upward tendency. Howard, Jasper, Jennings, and Washington, report no increase.

2. Unimproved lands present an increase, but vary greatly in price, according to location and resources. In Boone they are not much sought after, except for timber, but where conveniently located to railroads bring high prices. Lands in Fountain are valuable for stone, timber, and coal, and are generally adapted to cultivation. In Greene a large portion is heavily timbered, and abounds in stone, coal, and iron ore. Dubois and Owen produce excellent grasses and wheat; and Martin, Lake, and Kosciusko, are heavily timbered and good for fruits and grazing. Steuben is heavily timbered with the choicest of white wood, black walnut, white oak, white ash, &c. The soil is well adapted to all kinds of farming and fruits; it is natural grass land and readily sells for $20 and $25 per acre. In Bartholomew, Park, and St. Joseph the unimproved lands are worth as much, on account of their timber, as the improved. Peat is a ttracting considerable attention in St. Joseph, and it is to be thoroughly tested. La Grange and Montgomery report the highest figures per acre, being in the former from $5 to $100, and in the latter $30. In Fayette, Howard, Johnson, Putnam, and Wayne there is no wild land, and but little in Carroll and Vigo. In the latter county it will produce about 25 bushels of wheat per acre.

3. The minerals of Indiana are various, and, although not properly developed, already promise to contribute largely to the future wealth of the State. Want of railroad communication is severely felt in some of the counties, and retards the development of vast fields of coal and iron ore. Gold, copper, lead, and coal-oil have been found, but not enough is yet known of them to judge of their paying qualities. The finest varieties of timber, such as oak, walnut, poplar, and cherry, abound in all parts of the State, and the annual shipments are very large. In Lawrence county building stone, known as the "White River or Bedford stone," is found in large quantities and shipped to St. Louis, Cincinnati, Louisville, &c. The custom-house at Louisville, and United States court-house

in Indianapolis, are built of this stone. The coal of Vigo county is said to be very valuable for smelting iron ore, as it does not need coking. Limestone is also found in abundance, and immense quantities are burned for shipment to the south. Peat is found in several counties and is attracting attention. The soil throughout the entire State is generally of the very best quality, and well adapted to all kinds of grain and fruit.

4. Indiana cannot be said to have any speciality in farming. Wheat, corn, oats, hay, and flax are grown and generally yield good crops. In Wayne county the yield of corn and wheat is much smaller than formerly, and the latter now scarcely pays for cultivation. Many of the bottom lands yield $20 per acre profit when planted in corn. In referring to the failure of the wheat crop in some of the counties, our reporter in DeKalb says:

> Wheat has heretofore been made a specialty here, but for three years past has failed, and as but little attention has been given to stock raising the county is nearly impoverished by the failure.

Rye and buckwheat are cultivated to some extent in Bartholomew, Cass, Greene, and Martin, and produce well. Corn is much depended on for domestic purposes, and appears to be the favorite crop, never failing, and in some localities yielding from 50 to 100 bushels per acre.

5. The Mediterranean varieties of wheat are generally preferred. Among the kinds cultivated are Blue Stem, Lancaster, Tappahannock, White Italian, Delaware, May, Wabash, Baldwin, White Flint, "Lancaster, or Weevil proof," Canada Club, Alabama White and Swamp wheat. In several counties the "Weevil proof" is preferred, and the Delaware, and Tennessee, or May wheat in others. In Benton the Bearded Mediterranean is preferred, because it stands the winter and escapes the rust. In Brown county the Swamp wheat supercedes the Red Mediterranean, and in Howard it is the general favorite, while in Decatur both are preferred to other kinds. Our reporter in Howard sends us the following in regard to "Swamp" wheat, which is supposed to derive its name from the fact that it will stand the winter in low, wet ground, when no other will:

> Many kinds of wheat have been tried in this county, (Howard,) but the "swamp" appears to be the universal favorite among our farmers on account of its early maturity and almost total immunity from the *midge*.

It is also highly spoken of in several other counties.

The Mediterranean is generally sown from the 1st of September to the 30th. The usual time for sowing all varieties of winter wheat ranges from the 1st of September to the last of October, and harvesting from June 15 to July 25. No varieties of spring wheat reported.

In 22 counties reported, more than half the acreage is drilled. In Jennings the proportion is nine-tenths; in Fountain, Warren, and Fayette, three-fourths; in Decatur, Clinton, Vigo, Bartholomew, Kosciusko, and Montgomery, two-thirds. Steuben, Spencer, and Lawrence report "none;" Putnam, "very little;" Posey, "some little;" Scott, "no drills;" and Tippecanoe, "mostly drilled." It appears probable that from four to five-tenths may be drilled. In 27 counties, out of the 53 reported, drilling is the preferred mode of culture, in speaking of which our Cass correspondent says:

> Drilling is the usual mode in the prairie lands, for the reason the crop is more easily and evenly put in, and the further reason that the strong winter winds strip the roots of the growing crops of that which is sown broadcast, the soil being light and sandy, causing it to be killed by the frosts. On the contrary, the drilled crop is rather improved by the wind, the growth being in a small furrow, made by the drill, in which sand and light earth drift, and cover more completely the roots and protects them from the frost.

6. Blue grass, timothy, and clover grow abundantly. Blue grass, however, is the most prominent. It supplies the place of other grasses which die out, and in some counties takes possession of the pastures in a few years. Regular pasturage costs from $4 to $10 per head during the season. In Warren, good-

sized cattle will take on 400 pounds during six months. The pasturing season averages about seven months in length.

7. Nearly all kinds of fruit do well. Apples take the lead and are the surest and most profitable crop in the State. In La Grange county apples of the very best quality are abundant, and in no year since the country was settled have they been an entire failure. Jasper, Gibson, Green, and other counties are also productive of apples. In Fulton they are the principal crop, and pay 20 per cent. more than any other product. In Lawrence they were once a very sure crop and of excellent quality; now they are very knotty in consequence of being stung by some insect. Blackberries are very abundant in this county, and immense quantities are shipped to the cities. On the hills of Martin, peaches, apples, pears, plums, grapes, and cherries are generally abundant, and on hillsides and low-lands all do well but peaches. Over $300 have been made on an acre of peach trees in Morgan county. Peaches were very abundant in Cass county until 1855, at which time the trees were all killed by the severe winter weather, and since that time farmers have not paid much attention to this fruit. Our Washington reporter, speaking of the fruits of that county, says:

For peaches, *superior*. Much of our hill or knob land brings crops of high flavored fruit, 8 years out of 10. This business is getting to be a specialty, and increasing in extent each year. Under present management, profits range from $50 to $100 per acre, the estimate being based upon actual knowledge of some crops sold.

Grapes and small fruits of all kinds flourish in almost every part of the State, and, with few exceptions, the yield is large. A gentleman near Martinsville, Martin county, has several times produced over $500 worth of wine from less than an acre. Another gentleman, in the northern part of the same county, has been equally successful. The profits of fruit raising in Indiana vary according to the demand; and but few facts regarding the yield and profits have been reported.

ILLINOIS.

1. The average increase in the value of farm lands in the several counties of Illinois, as compared with the estimates under the census of 1860, is variously returned by our correspondents, ranging from as low as 6 per cent. in Lake county, on Lake Michigan, up to 100 per cent. in Ford, De Witt, Moultrie, Richland, Clinton, St. Clair, and Union. In Will, Grundy, Fulton, Christian, Macon, and Pope, the advance is reported 70 to 75 per cent.; Rock Island, Knox, and Stephenson, 60 to 65 per cent.; Winnebago, Henry, Warren, Douglas, Logan, Sangamon, Jersey, Fayette, Effingham, Cumberland, Cook, Wabash, Marion, and Washington, 40 to 50 per cent.; McHenry, Lee, Mercer, McDonald, Stark, Morgan, Crawford, Randolph, Alexander, and Massac, 30 to 35 per cent.; Madison, Macoupin, Pulaski, and Hardin, 25 per cent,; Kane, Bureau, Henderson, Woodford, Iroquois, Edgar, 15 to 20 per cent.; Livingston, Adams, and Franklin, 10 per cent. Edgar county reports an increase of 30 per cent. up to 1864, but since that date a decline to the 15 per cent. above reported. Moultrie reports a similar decline since 1863, though the general advance since 1860 is put at 100 per cent., while Richland reports that its increase of 100 per cent. has been made chiefly since 1863. Making reasonable allowance for extravagant estimates or apparently low valuations, the general increase for the whole State may be set down at from 40 to 45 per cent.

2. Of wild or unimproved lands a number of counties report "little or none," except such as may be connected with cultivated farms and not to be purchased separately. The prices for this description of lands vary greatly according to quality and location, ranging from $2 upwards to the full value of improved lands. In Stephenson county these lands are held at from $10 to $15 per acre, much of them broken and hilly, with small second growth timber adapted to grazing. Winnebago, very little unimproved prairie land in the county; it is held at

$30 per acre; unimproved timber land, with timber cut off, is worth $6 to $15; part of the latter has a rich, productive soil. McHenry and Lake have very little of such lands, disconnected from cultivated farms. Kane, no wild lands except swamps owned by the county, held at $4 to $10 per acre. Cook, $35 per acre, mostly low bottom land, too wet for cultivation, yet capable of producing good pasturage and meadow. Will county, $20 per acre, quantity small. Grundy, $16, deep loam with clay subsoil, capable of producing heavy crops of corn, grass, small grains, fruits, &c. Lee, $4 to $12; a portion will produce 30 bushels of corn, the balance fit for pasture. Bureau, average $15 per acre, mostly good prairie. Putnam, chiefly Illinois river bottom and bluff lands, the former rich and well adapted to the culture of corn and potatoes, the latter suited to fruit culture. Henry, average $18 50, quality about No. 2. Rock Island, $2 to $12 per acre, mostly low bottom lands. Mercer, $8 per acre; three-fourths broken or sharply rolling, bordering the streams, and generally covered with young timber; excellent for wheat and other small grains, and good for corn and grass; one-fourth is overflowed and not cultivable without leveeing, but furnishes subsistence to large herds of cattle. In Henderson nearly all cultivable land is now worked, and the timber land is being fenced for pasture. McDonough, a large amount of the best lands held by speculators, worth $25 per acre; secondary tracts and creek bluffs from $3 to $20 per acre. Fulton, $5 to $10 per acre, mostly "barrens." Warren, $15 per acre, prairie and timber; the soil of the former a deep rich loam, 12 to 18 inches deep; the latter not generally good, the timber constituting the chief value, hilly and uneven. Brown, $7 50 per acre; some No. 1 soil, remainder very thin; timber, coal, and potters' clay, upon some portions. Knox, $10 to $25 per acre, chiefly brush lands, generally underlaid with coal; these lands mostly good for fruits, especially grapes. Stark, $20 per acre, rich soil. Woodford, raw prairie, $14 per acre; timber, when suitable for lumber, $100 to $200 per acre; barrens (clay land from which the timber has been cleared) $10 per acre. Livingston, $15 per acre, suited for all farming purposes. Iroquois, $7 per acre, quality inferior to good, light sand, black sandy loam, black clay loam, and muck; good for grazing and general farming. Ford, $12 per acre, rich prairie. DeWitt, $8 to $25, chiefly belonging to Central Railroad Company, mostly low and flat, but equal to the best uplands when properly drained. Douglass, $15 per acre, mostly rich prairie. Edgar, $12 per acre, first-class land. Moultrie, $12 50, embracing about one-third of the county, held by speculators and the Central Railroad Company; quality excellent, claimed to be capable of producing corn, wheat, and hay for many years without manure. Christian, $10; one-third hard timber, remainder fair prairie. Macon, $8 to $15, generally held by speculators and Central Railroad Company; quality good, capable of high cultivation. Logan, $22 50, chiefly prairie of good quality. Sangamon, $24; mostly along watercourses, and belonging to farms; held for timber growing, and where fenced used as woods pastures. Adams, $5, timber land minus the timber. Macoupin, $10; good wheat and corn land. Jersey, $3 to $50, average about $12 per acre, mostly broken or kept for timber. Fayette, $10 per acre, good land. Effingham, prairie $15, timber $10 per acre; one-third of the county timber; soil, clay loam, adapted to grain, grass, and fruit. Cumberland, prairie land $11, good timber $12, glade or brush $4 to $5 per acre. Crawford, $10 per acre, timber and prairie, adapted to grain, grass, tobacco, &c. Richland, $15 to $20 per acre for wild land free from timber, and $4 to $8 for timbered prairie land; the latter being lower owing to the labor and time required to bring it under cultivation, the timber being thick but of poor quality. Wabash, $20 per acre, good for grass and for corn when drained. Marion, $18, prairie and timber, adapted to culture of grain and fruits, especially grapes. Clinton, $10 to $36; the upland is first-rate for wheat, and the bottoms for corn; the prairie adapted to general farming. Washington, $20 per acre, mostly timber or broken;

quality inferior. Randolph, average $15 per acre; a portion very rich, covered with hickory and oak. Franklin, $5 per acre, principally timber; one-sixth bottom lands, the remainder average tillable land, some of the best quality. Union, $15 per acre. Alexander, $9 per acre, black sandy soil, broken and bottom lands, good for grain and grass. Pulaski, $10 per acre. Massac, $3 per acre, swampy, but the driest portions are fine for grass. Pope, $3 50, mostly broken or hilly, with any amount of sandstone on the surface. Hardin, $5 per acre, good ridge lands, suited to grain and potatoes. Williamson, $9 per acre; quality tolerably good for general farming. In 1860 the improved land numbered 13,096,374 acres against upwards of 22,000,000 acres (including water surfaces) unimproved, but at this date the proportions are greatly changed.

3. Illinois is probably better supplied with timber than any other prairie State, and were it equally distributed no part of the State would be deficient. In some counties there is a large superabundance, as in Pulaski, from which our reporter writes that every acre of their land was originally covered with a dense forest of poplar and oak, giving employment to a large number of hands at the various mills and shingle and lath machines; while in other sections there is not sufficient for general home purposes. The varieties of timber most abundant are the oaks, black and white walnut, ash, elm, maple, locust, hickory, hackberry, linden, cottonwood, mulberry, pecan, sycamore, wild-cherry, sassafras, and persimmon. In the southern and eastern parts of the State, yellow poplar and birch are the peculiar growth, and near the Ohio are clumps of yellow pine and cedar, and the alluvial soils of the rivers produce cottonwood and sycamore timber of amazing size.

The northern portion of the State is rich in minerals, while coal, limestone, and sandstone are found in almost every section. Iron is found in considerable quantity in the southern, and lead and copper in the northern portions of the State. The coal deposits are spread over a large extent of country, being found in the ravines and bluffs of the Mississippi, and in immense beds on the line of the Illinois and other rivers, but as yet are comparatively little worked beyond the demand for neighborhood consumption, owing to lack of capital and facilities for transportation. About two-thirds of the counties responding to our circular report the existence of coal in greater or less quantities. Superior limestone is also reported in various quarters, where it is being extensively converted into lime—35,000 to 40,000 barrels per annum in Rock Island. Kaolin is found in Pope county; immense beds of peat in McHenry; salt springs in Gallatin, Jackson, Vermillion, and other counties, and sulphur and chalybeate springs in some localities.

The agricultural resources of Illinois, however, constitute her chief source of wealth and material prosperity, the State now ranking next to New York the highest in the aggregate value of agricultural products, reaching over $160,000,000 in 1866, and $184,000,000 in 1867. The character of the soil of the State is too well known to require detailed mention here.

4. Wheat, Indian corn, oats, hay, and potatoes, are the leading crops of the State being extensively grown in all sections, but the first two named are the great staples, the crop of Indian corn of 1866 aggregating nearly 156,000,000, bushels, or more than one-sixth of the entire crop of the country; and of wheat about 28,500,000 bushels, and about the same proportion of the total yield. As in all the northern States, a mixed husbandry prevails throughout the State, the full list of products suited to the latitude being grown to a greater or less extent in each county. The money values of the several prominent crops during the past year foot up in round numbers as follows: Indian corn, $74,000,000; wheat, $60,000,000; hay, $25,000,000; oats, $15,000,000; potatoes, $4,400,000; tobacco, $1,260,000; barley, $1,270,000; rye, $760,000; buckwheat, $273,000. The wheat is the chief money crop, however, a large portion of the corn and grass crops being fed out upon the farm to cattle and hogs, and thus converted into more compact

and profitable shape for transportation to market, though some of our correspondents state that the profits of feeding during the past two years has ranged from 25 to 75 per cent. of the selling profits, as while corn has been sold as low as 10 to 15 cents per bushel, last fall it brought 50 to 60 cents. Our Morgan county reporter says :

Our county is mainly engaged in raising beef and pork from corn and grass. Little reliance is placed on other crops, our lands being especially adapted to those named. The late Jacob Strawn, known as the Napoleon of cattle feeders, in his latter days, came here a poor boy about the year 1829, and died worth about $2,000,000, all accumulated in agricultural pursuits and the advance in the value of his lands. John Alexander, who began with nothing, now farms about 30,000 acres, and probably ships more beef into the New York market weekly than any other man in the United States. Other men have done well, many have made fortunes, but the certainty of profit from beef and pork, together with sheep, horses, and mules, to some extent tends to make our farmers negligent of the products of the dairy, the garden, and the orchard, and indeed of all other products, for many of which our soil is doubtless well adapted.

Our Sangamon correspondent writes as follows :

Corn is the principal crop raised ; our best farmers usually plant about the 10th of May. The common mode of culture is to plant with a machine, in hills four feet apart each way, dropping from four to six grains at a time. As soon as up enough to show the rows, the ploughs are started, either double-shovels or riding cultivators. Three times ploughing are usually considered sufficient, and a great many fields never get more than two. The average yield is not more than 60 bushels per acre, though some of our best farmers raise from 75 to 100 bushels. The average cost of breaking, harrowing, planting, cultivating, and gathering an acre of corn the past season may be set down at $10 ; the average price of corn in the crib, 60 cents per bushel.

Warren county :

Corn is the great staple and must continue to be. With the slovenly culture practiced, 25 bushels per acre is about as much as the county will average, while careful culture, with ordinary skill, will make whole farms average 80 bushels per acre ; showing that it is much more profitable than careless culture. Fertilizing our land (though very rich) increases the yield in as great a ratio as upon the thinnest land to be found, and will bring it up to 100 bushels of corn per acre with proper cultivation.

Brown county :

As high as 100 bushels of corn have been taken from one acre. The best 80-acre field I remember to have seen was raised by your correspondent in 1861. Mode of culture : wheat stubble ploughed in November 10 inches deep with a three-horse plough ; a similar ploughing in April ; planted four feet each way, ploughed three times, the last time the end of June ; yield, 70 bushels per acre. It was the year of the great frost on the 28th of August, which ruined so much corn in the west. This piece was entirely out of the way, was cut up, shucked and cribbed and the fodder fed to the stock. The corn was sold, August, 1862, at the depot for $1 01½ per bushel. Our help was contraband at $10 per month and board ; other expenses light. The profits were $60 per acre. The land was worth $40 per acre. The fodder was valuable, and some of it was sold as high as $5 per acre.

De Witt county :

Corn, when well worked, say 15 acres to the hand, will, in ordinary seasons, produce 80 bushels to the acre, making 1,200 bushels to the hand, or, estimated at average price for the past five years, makes $600 for about three months' labor. Spring wheat, owing to its many enemies, does not pay nearly as well on an average as corn.

Our Grundy reporter estimates the net profit of corn culture in that county at about $9 per acre, the average yield, 35 to 40 bushels per acre ; timothy seed, 4 bushels per acre, net profit, $9 per acre. In Franklin, corn is put at 35 bushels per acre ; expense per acre $10 ; net profit $6 50 per acre.

In a number of counties potatoes are largely cultivated, and by many considered the most profitable. In Putnam county the average yield is stated to be 125 bushels per acre, worth about 45 cents per bushel. The average for the State last year was about 60 bushels to the acre, worth on an average $1 20 per per bushel. In the lower counties the culture of cotton and tobacco has been quite profitable for a few years back. Sorghum has received considerable attention and success in some quarters, but for some unexplained reason the average has greatly decreased.

Our Moultrie county correspondent furnishes the following statement in reference to the relative profits of wheat and corn culture:

I shall take ten acres for a datum, and the present year (1867) for spring wheat as to quantity, and 1866 for corn, deeming that year an average of the previous nine years, the crop of 1867 having been a comparative failure, owing to the long-continued drought, and an unfair basis.

The variety of wheat sown was the Chinese; soil, prairie, old ground, nine years successively in corn.

Ploughing, 6 days; dragging and rolling, 4 days, at $2	$20 00
Sowing, $1; seed, 15 bushels at $1 50 per bushel	23 50
Harvesting and stacking at $2 per acre	20 00
Threshing, 6 cents per bushel; sending to market, 4 cents	21 35
	84 85
Credit by 213½ bushels wheat, $1 95 at station	416 42
Net profit, not counting wear of implements, sacks, etc	331 57

The corn was planted on old ground, cropped six years in corn.

Ploughing and dragging, at $1 25 per acre	$12 50
Planting and rolling	8 00
Seed, three grains in a hill	1 00
Working 4 times, 1¼ days each time, team and man	12 00
Shelling and marketing, at 5 cents per bushel	20 75
	54 25
Credit by 415 bushels of corn at 75 cents per bushel	311 25
Net profit on 10 acres of corn	257 00

By feeding the corn to stock a much larger profit may be realized.

The average yield per acre of the several leading crops of the State in 1867 was as follows: Indian corn, 23.8 bushels; wheat, 11.4 bushels; rye, 15 bushels; oats, 30.1 bushels; barley, 22.3 bushels; buckwheat, 15.2 bushels; potatoes, 60.5 bushels; hay, 1.5 tons; tobacco, 573 pounds.

5. The principal varieties of wheat sown in Illinois are the China Tea, Siberian, Rio Grande, Fife, Canada Club, Genesee, Zimmerman, Michigan White, White Chaff, red and white May, red and white Mediterranean, Blue Stem, Tappahannock, Red Sea, with a number of others not extensively cultivated and going under local names. All the varieties named have their advocates in various localities. Of spring wheats the China Tea, Rio Grande, Club, and Fife are the most popular as the most reliable and most productive, and of the winter varieties the white and red May and Mediterranean are considered more uniformly certain, standing the winter better than most other kinds. In several counties a variety known as the Zimmerman wheat is highly esteemed for its hardiness and general freedom from rust and blight. The Tappahannock wheat meets with much favor wherever introduced, and promises to become a very popular early winter wheat. A large proportion of the crop of Illinois is spring wheat, the winter varieties being so frequently injured by frosts as to render the crop uncertain in the northern part of the State. In the southern portions of the State winter varieties are more successful and are sown in larger proportion.

Winter wheat is mostly sown in September, many of our correspondents favoring the earliest seeding, commencing late in August, while others recommend later sowing to escape the Hessian fly, and in some sections the seed is not all in before the middle of October. Spring seeding begins late in February in a few localities, running through March on to the middle of April. In Crawford, Franklin, St. Clair, Washington, Fayette, Randolph, Sangamon, McHenry, Macoupin, Union, Madison, Cumberland, and a number of other

counties, the proportion drilled ranges from one-half to nine-tenths, many others running from one-twentieth up to one-half, while only a few counties report "none drilled." Harvesting commences by the middle of June in the southern counties, running through July and into August for the spring-sown crop. Of the mode of culture a correspondent writes:

The best farmers prepare their ground in the fall, ploughing deep; then, when spring opens sow broadcast, (from one and one-half to two bushels to the acre,) ploughing in with double shovel. After the wheat comes up they roll with a heavy roller. Some have adopted the plan of cross-harrowing after the wheat comes up, and then in a few days use the roller. The result has generally justified the expense.

Another correspondent says:

The amount of cultivation is but little. All is sown on fall ploughing, or on land upon which a crop of corn was raised the year before, the harrow only being used. Some, however, go through the corn rows with the sulky cultivator and cross with the harrow. None sown on spring ploughing.

Our Winnebago reporter writes as follows:

We plough our stubble land in the fall, stir the surface before sowing in the spring with a cultivator, sow broadcast and thoroughly harrow. The roller is coming into general use for wheat and other small grains.

6. White clover, June or blue grass, crab grass, common prairie, and on the low grounds red-top and brown-edge, are the natural grasses, while timothy, red clover, herdsgrass, and Kentucky blue grass form the cultivated pastures. When the prairie is tramped and eaten out by a long course of pasturage the June or blue grass succeeds it, and with white clover drives out timothy and red clover in a few years. Our McDonough correspondent writes:

Prairie grass is the only indigenous grass of value. So soon as this is pastured or tramped it readily yields to blue grass and white clover. Red clover succeeds well here by sowing, and timothy is one of our best crops, yielding on common meadows one and one-half ton per acre, which by mowing is easily increased to two and one-half and even three tons per acre. No crop here is so much improved by manure.

Fulton county claims to have raised (according to the census of 1860) about one-fifth of all the clover seed gathered in the State, or as much as 25 average counties, showing, says our reporter, "what we are doing to keep up our land, though not so much as we should do for profitable farming."

Stock does well upon pastures about seven months of the year on an average for the State, but somewhat longer in good cultivated pastures or in the more southern counties, where cattle will frequently subsist the whole year without feeding. When cattle are pastured upon the range the expense is trifling beyond the cost of herdsmen, and the highest estimate of cost of pasture is $1 75 per month in Jersey county, other counties ranging from that price down to "cost of boy to watch the herd."

7. Most of the fruits suited to the latitude of the several counties of the State are successfully grown, especially in southern and central Illinois, where the culture is made a specialty by many.

Our reporter in Union, one of the extreme southern counties, writes as follows:

A ridge of highlands, known as the "grand chain," passes through this county from east to west, and is admirably adapted to the culture of fruit. During the past ten years fruit trees have been extensively planted and many large peach orchards are now in full bearing. Pears, peaches, and apples do well; also strawberries, raspberries, and gooseberries. Plums and cherries have not been successful. In 1866 there had been planted 300,000 trees and 200 acres of berries, and at the present time there are undoubtedly 500,000 trees and 400 acres in berries. So great is the yield that five car loads (8,000 quarts to the car) of berries were shipped in a single day, and 15 car loads (250 bushels to the car) of peaches daily during the past season. An average yield of strawberries with all kinds of cultivation (including no cultivation at all) has been 50 bushels per acre, with a net return of $4 per bushel. Peaches, though considerably affected with rot, have made as good return per acre. Pears pay better, but the orchards in bearing are yet small. Early apples have done even better. Late apples are now attracting much attention and new varieties are being introduced.

Our reporter in the adjoining county of Pulaski says:

For early apples they have realized $7 per bushel, above expense of shipping and commissions, and for other fruits proportionately high prices. In Washington county most orchards are young, just beginning to bear. One man, from an orchard of 150 acres, the trees four years old from the bud, shipped 5,000 boxes (2,000 bushels) of peaches, at a net profit of $3,000. Another man, from six acres, the trees seven years old, sold 1,300 boxes of peaches, at a net profit of $650.

In McDonough county, apples succeed well, but our correspondent adds:

The worms and freezes in our soil render necessary the renewal of orchards in 20 years. Dwarf pears do well, but standards blight badly. Our only reliable cherry is the old Morello and English Morello dwarfed. Concord, Hartford, Prolific, Clinton, and a few other varieties of grapes do well, and we frequently have good crops of the Isabella, Diana, &c.

From Winnebago, in the extreme north, our correspondent writes as follows:

Our soil is excellent for fruit, but our climate is very unfavorable on account of the great extremes of heat and cold, and frequent and sudden changes. Peaches cannot be raised, pears but seldom, on account of the spring frost. The finer varieties of cherries do not succeed, while the coarser kinds are liable to be killed by frost while in bloom. Many varieties of hardy apples do well, but are not so fair and large as the same kinds imported from Michigan. The small fruits and hardy grapes do finely. One great drawback to fruit-raising is the late spring frosts which often occur while fruit trees are in bloom, especially the earlier varieties. Apples are much troubled with the codling moth, and plums with curculio.

In De Witt, apples appear to be the fruit best adapted to the soil and climate, though small fruits are raised in great abundance. During the past three or four years, apples have paid better than any other crop; many orchards of from three to five acres netting from $400 to $700. Our Grundy reporter says:

That fruit culture there affords a better profit than grain or stock growing, ranging from $100 to $200 per acre. In Jersey county there are several vineyards that have sold to the amount of $1,500 per acre, at an expense of from $700 to $800 per acre; while apples yield, on an average, 150 barrels per acre, worth, net in the orchard, 75 cents per barrel.

Our Effingham correspondent writes as follows:

Our soil is well adapted to apples, peaches, pears, quinces, plums, cherries, grapes, &c., though no attempt has been made to develop our capacity in these respects. Last year our apple crop was probably 30,000 bushels, worth $1 per bushel here. The varieties now cultivated are the Ben Davis, Rome Beauty, Maiden's Blush, Rambo, Raul's Jannetting, Golden Russet, Fall Winesap, &c., &c. Some of the older trees bear 20 to 25 bushels, indicating a capacity of 1,000 bushels to the acre. One peach orchard of 1,200 trees, near Mason, netted $1,200 last year. An orchard of peaches and apples, 10 acres, in Effingham, netted $3,000 at eight years old. As yet, nothing has been done with pears, except to get a fine show of Flemish Beauties. From a young vineyard of 400 vines, Mr. Hegeman netted $400. From a mixed ten-acre orchard of apples, peaches, quinces, plums, &c., Mr. L. W. Thompson, of Effingham, obtains a very comfortable living. About 100 bushels of strawberries can easily be raised to the acre, worth $3 per bushel, net. Early Richmond and May Duke cherries grow in great abundance and large shipments are made annually.

MISSOURI.

1. A number of the western counties of Missouri, including Holt, Jackson, St. Clair, McDonald and Green, Texas, near the southern border, and Howard, Shelby, and Linn, in the north-eastern portion of the State, report no material change in the average value of farm lands since 1860; whilst Montgomery reports an active decline of 20 per cent; Madison, 33 per cent., and Stoddard a still higher rate of decrease. Cooper, Ray, Osage, DeKalb, Calloway, Vernon, Audrain, Scotland, Lewis, Canton, Buchanan, Lincoln, and Scott, report advances ranging from 4 to 15 per cent.; Gentry, 20 per cent.; Christian, Cedar, Newton, and Dallas, 25 to 30 per cent.; Cass, St. Genevieve, Mercer, 33 to 40 per cent.; Pike, Mississippi, Harrison, Livingston, Iron, Chariton, Boone, Dade, Lawrence, Nodaway, 40 to 50 per cent.; Cole, 65; Miller and Bates, 80 per cent.; Moniteau, St. Louis, Phelps, Hickory, Johnson, and Henry, 100 to 150 per cent.; and Jefferson reports an advance of 400 per cent. From the several estimates of our reporters, there appears to be an average of 30 to 35 per cent. for the farm lands of the whole State since the date named. Our

Jefferson reporter accounts for the large increase of price in that county as follows:

Our county is quite broken and hilly, and was considered almost worthless for farming, averaging about $5 per acre; but in 1863-64 the hills began to attract the attention of fruit-growers, since which time prices have been rapidly advancing.

In many counties lands depreciated largely during the war, but have been increasing in value since 1865; from that date they have generally recovered the decline, and made the advances noted above the values of 1860. In this regard our Shelby correspondent says:

Farm lands are now about the same as in 1860; they were 25 per cent. lower in 1863-64, but have advanced at the rate indicated since the latter date. Good farms can be bought here for about $20 per acre.

Another correspondent, in Livingston county, writes as follows:

The price of farm lands in this county has increased about 50 per cent. since 1860. Farms selling in 1860 at from $10 to $40, according to locality, improvement, &c., are now selling at from $15 to $60. For some time during the war real estate diminished in value very much below the prices of 1860, but towards the close of the war it increased rapidly, and has advanced steadily ever since until it has reached the present rates, at which it seems to be on the stand.

2. The wild and unimproved lands of Missouri range in price from $1 to $70 per acre, embracing in character and soil as great a variety as in price. In Carter county this description of land is assessed at $1 30 per acre. In Stoddard it is worth $2 50 per acre on an average; of excellent quality; one-half called "swamp," but most of it usually dry and very fertile. Mississippi, $1 50 to $5 per acre, quality good. Scott, $3 per acre; northern part of the county hilly, and produces wheat, Indian corn, rye, barley, tobacco, fruits, &c.; the eastern and western parts, rich bottom land, (which sometimes overflows;) the central and southern parts sandy and differs in productiveness. Cape Girardeau, $1 and upwards; four-fifths of the area of the county susceptible of cultivation; one-fifth suitable for pastures; some portions suited to the vine and other fruit culture. Madison, $3; rolling, heavily timbered with oak; soil thin. Iron, $1 25 to $10; various qualities. St. Genevieve, average $1; varies in quality from good, gently undulating, to thin and rocky lands. Jefferson, $20 to $25; nearly all the hills or ridges have been tested in fruit-raising, and proved successful. St. Louis, unimproved farm lands average about $70 per acre; hilly land about $30; bluffs along the rivers $10; the hills tolerably good farming lands, but good for fruit; the bluff lands rocky and of little value except for wood, though, as far as tried, grapes do well. Lincoln, $7 50; some of the best land unimproved for want of population; 422,945 acres in the county; population, 13,000. Pike, $10, and Montgomery, $8; adapted to wheat, Indian corn, tobacco, &c. Audrain, $6, good prairie lands; Lewis, $6 50 to $15 for prairie, and $15 to $25 for timber; three-fifths of the county timbered, the other two-fifths rolling prairie; Clark, $5 to $10; Scotland, $6 50, good upland prairie and rich bottoms; Linn, $5, prairie, high and dry, soil generally good, slightly sandy; will produce all the crops of the latitude—corn about 40 bushels and wheat 20 bushels to the acre; Livingston, average, $13, prairie and timber; black, loamy soil; rolling prairie and river and creek bottoms. Mercer, $4 to $7, largely held by non-resident speculators; about two-thirds of the county unimproved, about equally divided between timber and prairie; high and rolling, nine-tenths susceptible of remunerative cultivation. Harrison, $1 25 to $5; black loam, quality good; Gentry, prairie $3, timber $12; the country is rolling prairie, with an abundance of timber; soil rich, dark loam, 20 inches deep, with clay subsoil. Nodaway, $4, capable of producing the crops of the latitude, particularly corn and grass; medium for wheat. Holt, $5, for lands lying near settlements; much not worth over $3 or $4; large tracts are held by speculators at $7 to $10 per acre. De Kalb, $10, upland prairie; La Fayette, $20 for prairie, claimed to be of finest quality, soil four feet deep; inferior quality, $10 per acre, will yield good crops

of wheat, corn, oats, &c. Buchanan and Jackson, $20; Ray, $8; will produce wheat, corn, tobacco, &c. Johnson, $12, character good for farming purposes. Cass, $10 to $30 for timber and $4 to $15 for prairie; all good, tillable land, with from 12 to 30 inches virgin soil. Henry, prairie $6 to $10, timber $20 to $25; soil, alluvial limestone, black and rich. Bates, $6, limestone, with clay subsoil; prairie rolling, and on the ridges there is a good supply of lime and sandstone for building purposes. Vernon, about 350,000 acres of raw prairie in the market, at from $2 to $5 per acre; sandy loam and coarse black limestone soils, adapted to all the small grains and grasses. St. Clair, $4, and Cedar, $3; character diversified, from lands fitted only for pasturage to the richest of river bottom, which will produce 50 to 75 bushels of corn per acre. Dade, $2 to $5 for such as may be cultivated; considerable portions rendered unfit for cultivation by reason of mixture of rocks, sandstone, limestone, &c. Lawrence, $5; timber and prairie; three-fourths of the prairie susceptible of cultivation, all good grass lands; half the timber can be cultivated. Newton, bottom lands and best prairie, $10; inferior, $5 per acre. McDonald, $2 to $6; the county is broken and hilly; none but prairie or valley lands tillable. Green, lands fit for cultivation or in timber, $7; about 300,000 acres wild land in the county, 75,000 of which is owned by the Southwestern Pacific Railroad Company; prairie and timber, four-fifths cultivable. Christian, $3, and Texas, $1 to $5; partially timbered; soil gravelly, adapted to the culture of fruits, tobacco, and the cereals. Hickory, $4, lands productive. Dallas, $2 to $10; a portion susceptible of cultivation, the remainder valuable only for timber and pasturage. Phelps, $1 to $10; mostly broken, with some little prairie, but chiefly timbered; the valleys are very rich, and good for corn, the uplands for small grains and fruit. Miller, $1 25 to $5; variety of soils, from dark limestone loam to light or chocolate-colored, and clay subsoil. Osage, $6; rolling, with a top loam from 6 to 10 inches in depth; Cole, $1 to $10; much of it excellent wheat, grass, and orchard land; a portion of the cheap lands will be useful only for sheep pastures, having a flinty, gravelly surface, covered with oak, hickory, and some grass. Moniteau, $8 to $12; capable of producing 40 to 50 bushels to the acre. Cooper, $10; suited to fruit culture. Boone, $10; fit for general farming; Calloway, $8; will grow tobacco, wheat, and grass. Howard, $5 to $10; soil thin but productive. Chariton, $7 50 for prairie, $20 for timber; soil equal to any in the country.

There is still a great deal of government land in Missouri subject to entry under the homestead laws or purchasable at the established prices for public lands. In 1860, the total area not included in farms exceeded 21,000,000 of acres, against about 20,000,000 taken up in farms, only about 6,000,000 of which was actually under cultivation.

3. Missouri is rich in soil, minerals, and timber, and from its favorable location and great natural resources must at an early day take high rank among the great States of the Union. The Missouri river divides the State into two parts, having different physical characteristics. South of the river, as far west as the Osage, the surface is rolling, gradually rising into a hilly country. Beyond the Osage, at some distance, commences a vast expanse of prairie, stretching westward. The chief geological formations in these regions are solid strata of carboniferous and silurian limestone and sandstone, reposing on or around the unstratified primary rocks. In the hilly and broken regions, including a large portion of the State south of the Missouri, the soil is formed of disintegrated sandstone, and sienite and magnesian limestone. The soils composed of the latter materials are fertile, but in some parts of the mineral regions their productiveness is impaired by the admixture of iron oxides. That part of the State lying north of the Missouri is either rolling or quite flat, and in no place mountainous. The soils are equal to the best intervale lands, and cultivation is probably in a more advanced state than to the south of the river. Its geologi-

cal substratum is chiefly carboniferous limestone, and the district is distinguished for its vast measures of bituminous coal. In the southeastern section of the State, from Cape Girardeau to the northern part of Arkansas, there are large tracts of marshy and inundated lands.

The principal minerals of the State are iron, lead, coal, copper, tin, lime and sandstone, freestone, &c., &c. Iron is reported in greater or less abundance in Scott, Cape Girardeau, Iron, St. Genevieve, Mercer, Cedar, Green, Texas, La Fayette, Newton, Phelps, Osage, Cole, and other counties; coal in Lincoln, Montgomery, Audrain, Shelby, Lewis, Scotland, Linn, Livingston, Mercer, Harrison, Gentry, La Fayette, Nodaway, Cass, Henry, Bates, St. Clair, Vernon, Dade, Cole, Moniteau, Boone, Calloway, Howard, Chariton, &c.; lead in Madison, Iron, St. Genevieve, Jefferson, Mercer, Vernon, Cedar, Newton, La Fayette, Green, Texas, Dallas, Osage, Cole, &c.; copper in Vernon, Cedar, Green, Texas, and Cole; tin in Iron; slight traces of gold in Mercer, but not in paying quantities; silver in Cedar; nickel and cobalt in Madison; limestone and sandstone in Scott, Lewis, Livingston, De Kalb, Buchanan, Phelps, Cole, &c.; salt in Fayette and adjoining counties; chalk and potters' clay in Scott and La Fayette; fire and potters' clay in Audrain and Cole; superior white sand in St. Genevieve; antimony in Cedar; and glass sand in Cole. Our Lincoln reporter says that a bed of coal, 10 miles long, one to three miles in width, and of unknown thickness, underlies that county; shafts having been been sunk in the bed to the depth of 18 feet without getting through. In Calloway there is a bed of cannel coal, 25 to 75 feet in thickness, extending for miles it is claimed, and lying within four miles of the Missouri river. A vein of coal in Cole county, on the Pacific railroad, has been bored 100 feet without exhausting the coal measure. In particular localities these several minerals have been largely worked, but generally the mineral resources of the State have been but slightly developed, want of capital being the chief drawback.

Walnut, hickory, elm, ash, oak, hackberry, linn, dogwood, maple, cotton, pecan, sassafras, and other varieties of timber abound in many sections of the State, and in few, if any, counties is there a lack of timber for home uses. In some counties lumbering is extensively engaged in. Our Texas reporter says they have thousands of acres of pine timber, with four steam and 10 water-power mills now sawing lumber. In Mississippi county the timber is said to be very fine: "oaks, five feet in diameter; poplars, eight feet; cypress, 14 feet, (exceptions, but plenty four to eight feet in diameter;) but few mills, yet fifty mills could make fortunes here, as there is plenty of timber and good shipping facilities." Oak wood brings from four to five dollars per cord in Jefferson City, Cole county. The Pacific railroad is here supplied with fuel for the distance west of this county, where the line runs more than 100 miles through a prairie country; much is also sold to steamboats along the Missouri river. Railroad ties for the Pacific railroad are also furnished from this point.

4. Corn, wheat, oats, potatoes, tobacco, and hay are the leading crops, but neither can be classed a specialty in any county, though Indian corn is by far the heaviest product of the State, reaching nearly 47,000,000 bushels in 1866, and over 50,000,000 bushels in 1867. The wheat crop of 1867 reached nearly 5,000,000 bushels; oats, 4,300,000 bushels; potatoes, 1,100,000 bushels; tobacco, 11,600,000 pounds; hay, 680,000 tons. The average gross receipts from the several crops per acre were about as follows: corn, $18; wheat, $25; oats, $15; potatoes, $71; hay, $19; tobacco, $92. The corn and hay crops, particularly back from railroad facilities, are largely consumed upon the farms where grown by cattle, horses, mules, and hogs, stock raising having been largely engaged in within the past few years as the most profitable branch of farming operations for the interior, distant from markets and railroads. Our Chariton reporter writes as follows:

Previous to the war tobacco and hemp were specialties in this county; but since the change in our system of labor our farmers are rapidly adapting themselves to the change, and are

turning their attention to stock raising, for which our county is eminently adapted. Corn, wheat, rye, oats, potatoes, grass, and orchards are rapidly taking the place of the former crops, and our prairies being filled with cattle and mules, which will be more profitable.

Our Cole county correspondent says:

The old settlers grow mostly corn, which must be fed on the farm if made profitable, for only such as are within five miles of a shipping point can net 50 cents per bushel when the price in St. Louis is $1 per bushel. Eastern people and the Germans pursue a more varied husbandry, raising small grain for market, which finds ready sale at remunerative prices. The large merchant mills along the line of the Pacific railroad are eagerly buying up all the wheat and rye to supply their milling capacities. Peaches, apples, and small fruits are becoming articles of freight west into Kansas, where all that can be shipped find a ready market. Much attention is also being given to grapes, which will in a few years form a considerable item of our produce and trade westward. Hemp is a profitable crop in the rich bottoms, but labor for its cultivation is scarce.

Shelby county:

Our principal crop is corn, timothy, and Hungarian grass. We raise and feed stock to get our money back. Our lands will yield 35 bushels of corn and from one to one and half tons of hay per acre, the corn selling at 30 to 60 cents per bushel, the hay $6 to $8 per ton.

Scotland county:

Our farmers are giving the most attention to the hay crop, raising only sufficient grain for their stock. Taking the prices of the past few years as a standard, the profits of stock-raising far exceed those of any other branch of farming.

Cooper county:

Wheat is the great staple of this county. The soil being of a porous nature prevents the wheat from freezing out in winter. The average is about 20 bushels per acre. It costs about 75 cents to raise a bushel of wheat, worth $2 50 per bushel; profit per acre $30 to $40. Good wheat land is worth $40 to $50 per acre. So you see wheat is the most profitable crop.

De Kalb county:

Wheat is the surest and most profitable crop. Average of wheat about 25 bushels per acre; corn, 40 bushels; oats, 35 bushels.

Phelps county:

Until within a few years the principal crops were corn and its concentration, pork; but lately there has been more attention paid to the culture of wheat, and it bids fair to be of much importance, as we are having mills to convert it into flour and railroads to export it. Corn will yield 25 to 50 bushels per acre in an ordinary season, worth 50 cents to $1 per bushel. Wheat in one instance the past season yielded 27 bushels per acre, but the average is not much above one-half that amount, worth the present season $2 to $2 30 per bushel.

La Fayette county:

Hemp is the special product, averaging about 600 tons annually. It is baled in the rough and sold at river points to hacklers and shippers at from $100 to $200 per ton. Flax does well, but is not raised extensively. Corn is next in importance, returning with very little labor from 40 to 80 bushels per acre. The hoe is never used. With eastern cultivation 100 bushels and upwards has been the yield. It is always a sure crop, and sells at from 30 to 60 cents per bushel Wheat has been heretofore considered a doubtful crop, owing to the light quality of the soil allowing it to freeze out; this is obviated by sowing on rough ground or by drilling. But on newly broken ground the first three crops are certain; the second and third generally the best. This season, on both old and new land, the crop is very abundant, and has been good for the last three years.

In Lawrence profits are estimated as follows: Corn, $8 50 per acre; wheat, $10; oats, $12; Mouiteau wheat, $15 to $20 per acre. The average yield in St. Louis county is given as follows: 15 bushels of wheat, 50 bushels of corn, 60 bushels of potatoes, 1 ton of hay.

Cotton is cultivated to some extent in some of the southern counties, but is not a certain crop, nor upon the whole as profitable as other branches of farming. Hop culture is receiving some attention in Gentry and a few other counties, the soil and climate being thought favorable.

5. Of the varieties of wheat sown in the State, white and red Mediterranean, red and white May, Walker, blue-stem, Golden chaff, Tappahannock, white rock, goose, Canada club, and tea are the most prominent in the several counties; the Mediterranean, early May, blue-stem, and Walker being generally

preferred for fall sowing, and the Canada club, goose, and tea for spring grai, The May and Walker are preferred for their early ripening qualities and freedom from rust, while the Mediterranean is thought to stand the winter better and realize a safer crop. Our Cole reporter says:

The red chaff is generally cultivated, sometimes discarded for a season or two, but sure to be reinstated, because it is the surest crop, and its yield as good as that of other varieties. White wheat is the favorite on the uplands. Zimmerman wheat is grown on the rich lands where other varieties would lodge and fall down. It has short and hard straw, and brings the best price in market, yielding a very white flour and having but a thin shell. The Mediterranean is disliked on account of its beards and poor quality, but as to quantity it is good.

In some localities the blue-stem is preferred as best adapted to prairie soil. The Tappahannock is popular so far as yet introduced, being earlier and yielding better flour than most other varieties. In Madison county the white rock wheat is generally preferred, because of its greater yield, and excellent flour.

But a small proportion of the crop is spring wheat, though in a few of the northern counties it is given the preference, winter varieties being liable to freezing out in cold winters.

Fall wheat is generally put in the ground during the months of September and October, and the spring varieties in March and April; harvesting commences about the middle of June in the lower part of the State, extending to the middle of July, some of the spring sown grain not ripening until August. In a majority of counties there is very little drilling, in many none at all, and no county reports more than one-half. In most localities where tried the drilling system is considered superior to the old mode, and is gradually being adopted. A correspondent says:

Wheat is largely cultivated, but generally badly managed; some, however, have used the drill to good purpose, and produced from 20 to 25 bushels to the acre.

Missouri wheat culture is no exception to the general system of the west—the largest possible crops upon the least amount of labor—almost everything left to nature beyond the dropping of the seed. A correspondent writes:

The careful and scientific culture of wheat is not practiced in this county; no drills and but few rollers. Wheat generally sown among the growing corn and "scratched in" with bull-tongue plough. The only wonder is that we harvest any crop from such culture; yet from 10 to 25 bushels are generally realized.

Another reporter says:

The mode of culture is rather primitive in most cases, the seed being sown broadcast and covered with a shovel or triangular plough; a few plough the ground and harrow in the grain.

Some plough stubble ground twice, sow broadcast, and harrow twice. Fallow ground is usually ploughed but once. Our Madison reporter says:

The soil is generally broken about four inches in August or September.

In Iron county the general culture is breaking the soil, sowing, and harrowing or brushing in; in dry seasons sown among the corn and ploughed in. The average yield of wheat per acre in Missouri in 1866 was 16½ bushels; and in 1867 about 12½ bushels.

6. The wild prairie grasses, blue-joint, June grass, rye grass, white clover, sage, and swamp grasses, furnish the natural pastures of Missouri, the native prairie grass being generally superseded by blue grass, which appears in all sections of the State where the prairies are pastured freely. Timothy, orchard grass, red-top, and red clover are the principal cultivated grasses, but the prairies are the chief reliance for the subsistence of stock during the pasturing season, which is reported as ranging from 6 to 11 months in length in the several counties, the average in the State being about eight months, during which stock can do well upon pasture alone, though a number of counties name nine months, and Pike runs up to eleven months. Our Chariton reporter writes upon this subject as follows:

Bluegrass mixed with white clover in our pastures and commons, and on our prairies a luxuriant growth of prairie grass mixed with blue grass around farms. In some seasons

stock will keep fat on the pastures until December. Pasturage on our prairies are free. The cost of herding large herds is about $20 per month per head; in pastures about $1 per head per month for cattle, horses, and mules, and about 15 cents per head for sheep. For wintering stock, (about five months) about $12 per head for cattle, $20 per head for horses and mules, and $1 per head for sheep.

Our Green reporter, in the southwest, says that stock can feed exclusively on pastures nine months in that section, and he has seen stock pastured all winter and come out in the spring in good condition, the mode being to take the stock off blue grass in August and turn on again in December. In many cases stock subsist through the winter in the woods, and in the marshes and wet lands, and the hogs get fat upon the mast in winter without corn. The cost of pasturing cattle is but trifling in most localities, the range being free and the only expense that of salt and herdsmen, and frequently the services of the latter are dispensed with. Our reporters return various figures under this head, from "no expense" up to $1 per head per month.

7. With but two or three exceptions our correspondents speak favorably of the capabilities of their respective counties for fruit culture—apples, peaches, pears, plums, grapes, and the various small fruits, being generally successful, though in the northern part of the State peaches are uncertain, in some localities averaging not more than one crop in three or four years. A few extracts from reports of correspondents in different sections of the State will serve to illustrate the general character of counties adjacent:

St. Louis:

This county is well adapted to fruit culture. Peaches are fine, and crop enormous, but are winter-killed at least once in three years, and partially so three times in five. Spring frosts hardly ever affect them. The Concord grape is entirely healthy here, never fails, and will yield under good treatment 10,000 to 12,000 pounds per acre; average about 8,000 pounds; never selling less than 15 cents per pound.

Shelby county:

Nearly every farm has an orchard, and the trees do well. Apple, pear, and plum trees bear nearly every year. Peach trees grow thrifty, but do not bear more than one year out of two; but when they do bear they yield well, and the fruit is of superior quality. Many of our older orchards yield 15 to 20 bushels to the tree, worth 75 cents per bushel.

Howard county:

This being one of the first counties settled has more fruit than any county except St. Louis. Winter apples are chiefly cultivated, and three-fourths of the trees are Rawle's Jannetting, though most varieties of summer and winter apples do well. I have in my grounds, now nine years old; of summer apples: Strawberry, Harvest, Astrachan, Early Joe, Early June, Summer Pearmain; and of winter and fall kinds: Rambo, Swaar, Spitzenburg, Rhode Island Greening, Northern Spy, Newtown Pippin, Fall Pippin, Golden Pippin, Lady Apple, &c., which are bearing freely and promise well. Peaches are very uncertain, except on the bluffs near the Missouri river. Standard and dwarf pears do well if properly trained and cared for. Nectarines and apricots uncertain, though I have had some fine crops. About 1,600 barrels of winter apples were shipped from our village (Glasgow) last fall by river, at 50 cents per bushel, though on the north Missouri railroad, passing through the next tier of counties, the same varieties brought $1 per bushel.

Linn county:

Our capabilities for fruit are very fine. We produce apples, pears, plums, peaches, (about half the seasons,) grapes, quinces, and all the small fruits. Apples, pears, and plums have not failed in 10 years. Apple trees five years from the nursery last fall yielded $10 each in fruit. Many trees have been set during the war. Grapes are doing well—no mildew or rot for three years past, nor previous to that, except on Isabella. Varieties grown here: Concord, Clinton, Hartford Prolific, Delaware, Rogers's Hybrid, No. 15, Isabella, Catawba, &c.

Chariton county:

Apples are very profitable, and peaches do well when not killed by frost, and are very fine. Grapes succeed well. The past season peaches sold at from $1 to $4 per bushel; apples, 75 cents to $1 per bushel; grapes, 20 cents per pound. One farmer in this vicinity sold $2,500 worth from his orchard, the fruit being gathered by the purchasers. Another from an orchard of about 1¼ acre, realized about $600.

Cass county:

Splendid fruit country; apples most plentiful. Last season (1866) was an average crop. E. P. West, from 20 fifteen-year-old trees, gathered 300 bushels. Several orchards of from 120 to 150 trees, of about the same age, produced upwards of $1,000 each at home. The Union Pacific railroad will give us an unlimited market. Peaches bear three years in five.

In Livingston, one gentleman gathered from 100 trees 1,000 bushels of apples, worth 75 cents to $1 per bushel; peaches do not succeed so well; pears grow large and delicious; many persons are putting out vineyards, but the business is yet new. In De Kalb, one small orchard of 27 trees, set nine years, yielded 117 bushels of apples, worth 75 cents per bushel; peaches yield about once in three or four years; pears, cherries, &c., do well. Our Pike reporter says that 50,000 bushels of apples are annually shipped from that county. In Lincoln, an orchard of 1,200 trees, 14 years old, yielded $1,500 worth of apples last year, at $3 per barrel. Our Miller county reporter says:

I have never known any place to exceed this for fruit. Apples and pears receive most attention, but pears, grapes, and all the small fruits do well. I have one apple tree (Wine-Sap) only six years old from the seed, which last season yielded one bushel of good, well-grown fruit; the tree is three inches in diameter. A dwarf pear tree, only four years from the bud, ripened 70 pears of the Seckel variety. Beat that anywhere else, and let us hear of it.

In Cooper county, apples rarely fail, and our correspondent says that 10 acres set out in good winter varieties will be a fortune to a young man; he can set 40 trees to the acre, which will bear in about five years, when he can get $5 per tree for his fruit standing, $200 per acre, $2,000 for his orchard. Our Cole reporter says:

All our uplands, ridges, and hills are specially adapted to the growing of peaches, apples, and grapes. We have already varieties of apples which are a sure and profitable crop. Early peaches, except chance seedlings, are still on trial; the Early Crawford has failed for two years past on account of ice in March, or perhaps from neglect. Late peaches do well. Cherries, pears, plums, &c., grow well. One pear orchard of several thousand trees is a failure, either from an unlucky choice of varieties or from want of proper cultivation. Grape vines do exceedingly well in soil which was at first thought sterile. Strawberries grow luxuriantly.

In the western and southwestern portions of the State fruit culture promises to become a profitable branch of farming operations, a number of counties reporting the setting out of orchards of apples and peaches on an extended scale. Our La Fayette reporter writes as follows:

I think we can beat the world in fruit culture. We export north of the river to Kansas, Nebraska, Iowa, and to all the Territories. Last year (1866) the crop was short but still enormous. From all the data at hand, I should estimate the crop of 1867 at not less than $500,000, besides home consumption.

The culture of the grape is encouragingly spoken of from various quarters. Our Dade reporter says:

As to fruit our soil is wonderfully adapted to the growth of all kinds of fruit, especially the grape, apple, &c. The grape grows here spontaneously in astonishing quantities, and of quality almost equal to the imported varieties. Your correspondent could any day during the grape season fill his wagon bed with grapes that grow spontaneously on the brush-land of his premises, and might repeat it for many days.

Jefferson county:

Fruit is our specialty, including grapes, apples, peaches, pears, and all the small fruits. The grape vine grows wild all through the woods, the fruit hanging from our largest forest trees. The vines grow from 10 to 20 feet the first year, and bear almost a full crop the second year. A peach bud will grow an inch in diameter and eight feet high the first year on a two-year old root. Our soil, climate, and elevation combine to make Jefferson the great fruit and wine county of Missouri. Our grapes and strawberries are 10 or 12 days in advance of any in the market. The grape and apple crops never fail; peaches have failed but once in 33 years, viz., in 1865. Peaches yielding $500 per acre, apples $300, pears $750, and grapes $900 to $1,000, are considered average crops. There are 350,000 fruit trees and 250,000 grape vines now planted in this county, with room for ten times the number.

Madison also claims to be one of the best fruit counties in the State. Apples and peaches seldom fail; the pear and cherry also do well, and all the small fruits produce abundantly. The grape does well so far as tried, and our reporter thinks they have the best grape soil and climate in that part of the State of any in the west. From the very encouraging reports of our correspondents fruit culture is becoming an important interest in Missouri, promising complete success in quality of productions and remunerative profits.

NEVADA.

1. Our only reports from Nevada come from the counties of Washoe and Esmeralda. The agricultural portions of the former were sparsely settled prior to 1860, and but little attention had been paid to raising cereals or even vegetables, the chief production being hay from the wild grasses bordering the ponds or streams of water; the opinion generally prevailed that the soil beyond these margins named was worthless, but from small experiments made, confidence in the productiveness of the soil in the higher portions of the valley began to increase, and at the present time it is generally conceded that all of the cereals and more hardy vegetables can be raised with profit. Many tracts of land have been taken up, therefore, and rendered productive and valuable, that have been considered worthless. The grass lands of 1860 are probably worth no more now than then, excluding improvements. Of Esmeralda, also, very little was known prior to 1860, at which time the mines were discovered, bringing in large numbers, and as a consequence most of the agricultural lands were taken up, and are now under a good state of cultivation, showing an increase in value of not less than 100 per cent.

2. The average price of wild or unimproved lands in Washoe is $2 50 per acre, being government as well as Railroad Company price, there being none held outside. The character of such lands suited to agricultural purposes is upland valley, covered with sage brush; soil sandy, in many places a loam predominating, in others a kind of clay. In Esmeralda the soil on the margin of the rivers, and in the valleys where there is water, is rich and deep; four-fifths of the unimproved land of the county are covered with sage brush, rocks, and a few scrub-trees, and is consequently worthless; the wood is pinyon pine, with a small portion of timber.

3. Washoe county embraces no marked or peculiar resources excepting in minerals, which have not been thoroughly tested, not to an extent sufficient to demonstrate their value. Peavine mountain, lying in the western portion of the county, evidently contains large bodies of ore, copper probably predominating, fused with gold and silver, but from the pecuniary inability of the owners of leads, together with other hindering influences, they have not been developed.

Our Esmeralda reporter writes as follows:

> Our minerals are principally silver and gold in most of the districts. The ledges are large and the rocks rich, they being the only productive minerals thus far; but we have copper, iron, lead cinnabar, gypsum, and some large salt beds, some of which are 20 acres in extent and the salt two to four feet thick. For the great want of capital in this new county the mines are but partially developed, and it is believed that no place offers greater inducements to capitalists than this county.

4. The hay crop is the specialty in Washoe; the grass of the natural varieties mainly, though considerable attention is now being paid to timothy, and some to the clovers. But little dressing has been put upon these lands as yet, but they would doubtless be improved thereby. In Esmeralda, wheat yields about 30 bushels to the acre; barley about 35 bushels; oats 40; corn 30, and potatoes 150 bushels—the culture and profit of which are satisfactory.

5. Australian and Sonora wheat are mostly cultivated in Washoe, the former being generally preferred as more hardy, producing a large white berry and

making excellent flour. Some prefer the Sonora because it yields well and matures quicker. The best time for sowing is early in the season, in February or early March, if the weather will permit; some have sown in January, with good results. Harvesting, about the 20th of July. Mode of culture: sowing broadcast and harrowing, accompanied by irrigation during growth, but if sown early little water is required; none drilled, though our correspondent thinks the drill would be an advantage, if introduced. In Esmeralda, the Australian, Club, red Mediterranean and Tappahannock wheat are cultivated; about one-tenth of the crop is drilled.

6. Blue-joint, red-top, clover, peavine, wire-grass, wild rye, &c., are the natural grasses, upon which farm animals frequently graze the entire year, and perhaps 11 months on an average. Our Washoe reporter estimates the cost per head for keeping full-grown stock, $25 to $30 per year, whilst in Esmeralda it is given at $15 per head.

7. Fruit has been but little tried as yet, but apples, peaches, &c., of the hardier varieties have done well so far as experiments have been made. The question has not been so fully tested, however, as to warrant an opinion as to capabilities.

CALIFORNIA.

1. Our returns from California are quite meagre, and not sufficiently complete to form a basis of judgment for the entire State; yet we give such as have come to hand, as being of interest so far as they extend. Yuba county reports an advance of 75 per cent. in the value of the higher farm lands since 1860. Monterey puts the increase at 30 per cent., and Del Norte 12 per cent.; whilst Amador and Tuolumne report a decline of 50 per cent. since the date named. Our San Francisco correspondent says that farming lands throughout the State have largely increased in value, and estimates that all improved farming property has fully doubled in value since 1860. Our Yuba reporter writes as follows:

In order to make my answers plain to you I must state that in California we have two chains of mountains running north and south, the Coast range and the Sierra Nevada; the former stretching along the coast to the west, and the latter along the State line to the east. Between these mountains there is a valley called the valley of the Sacramento, reaching from Mount Shasta on the north to the southern limit of the bay of San Francisco, and about 400 miles in length. This depression or valley is from 20 to 60 miles in width. Along the bays and the lower extremity of the Sacramento river there are thousands of acres of swamp and overflowed lands. Higher up on the rivers and in the valley there is a great deal of lower bottom lands, very rich and productive, and subject to nearly annual overflows. Much of this is yearly being destroyed by mining, by the deposit of from two to ten feet of sand, gravel, and debris brought down the rivers in times of overflow from the working of the mines in the mountains. This deposit has already destroyed over 8,000 acres of the richest lands in my county that ever lay under the sun: lands worth from $100 to $150 per acre are now not worth $3 per acre. Indeed the garden of the State has been and is being destroyed; fields, orchards, vineyards, fences and improvements all buried up and obliterated, and only remaining a white, drifty, sandy waste. So the mines are becoming a curse to the State. Now, besides these overflowed swamp and bottom lands there is in the valley what is called the higher plain lands, which constitute about two-thirds of the whole valley. This land is of a heavy, dry clay soil, and was at first considered worthless. Along the mountain sides there is a similar soil; and this, with the little valleys in the mountains, is now being extensively cultivated. These high lands, as I shall call them, are adapted to wheat, barley, oats, rye, orchards and vineyards, but are too dry in summer for corn, potatoes, &c.

Various reasons are given for the decrease in value of farm lands in Tuolumne and Amador. In the former it is attributed in part to the failure of either State or federal laws to protect improved lands from the miners, or those who are ever on the watch to locate claims upon lands improved by the money and toil of the honest settler.

2. The average value of wild or unimproved land in Yuba county is $4 per acre; this land is productive, and of the character indicated in the above extract; it will produce, according to our reporter, if fallowed, 60 bushels of wheat to the acre, and 40 to 45 bushels if not fallowed, and other cereals in proportion. In

Monterey the price ranges from 50 cents to $2 50 per acre. In Del Norte, $1 25 per acre; chiefly mountainous, and all heavily timbered, mostly with red wood. In Amador our reporter says the wild lands are worthless. In Tuolumne these lands belong to the United States, and may be taken up by settlers; the valleys have a rich deep alluvial soil, capable of raising almost any crop with irrigation. The hills are volcanic, calcareous, granitic, and slaty, and furnish the best of sites for vineyards, and yield good crops of grain if sown early in the season. Our San Francisco correspondent, speaking for the State, says:

We have so sparse a population, however, that there are vast quantities of good arable land which can be purchased of government at from $1 25 to $2 50 per acre, while some of the large grant owners are willing to sell good lands, but not very eligibly situated for market, at the same prices. The Central and Western Pacific Railroad Companies also sell land within a few miles of the line of their roads at from $2 50 to $10 per acre. Almost all of the valley lands of the State may be termed wheat lands, the great majority, with proper ploughing, producing from 15 to 40 bushels per acre. Almost any product of the north temperate zone can be raised on the ordinary lands in California. Besides the parties named the State has large quantities of swamp or overflowed lands, (which can be reclaimed at moderate expense,) and school lands in different sections which can be purchased at from $1 to $2 50 per acre.

3. The soil of the valley lands is universally productive, while the mountain ranges furnish an abundance of timber. A large lumbering business is done in Tuolumne, a ready market being found in the valleys of that county, Stanislaus and St. Joaquin, at from $25 to $50 per thousand feet. In Amador the timber is mostly cut, except in the higher eastern portion of the county bordering on the Sierra Nevadas, where remains some of the finest timber in the world, while in Del Norte and other counties the redwood timber is almost inexhaustible. The mineral wealth of this country is too well known to require detailed mention here.

4. Wheat and barley are the staple products of all the valley counties except Los Angeles, El Dorado, and Sonoma. In Los Angeles and El Dorado wine-growing is the great interest; a large quantity of grain, however, is raised in the former county. In Sonoma the wine-growing interest predominates, although grain of all kinds is raised in considerable quantities, that county being the second wheat-growing county. Wheat and wine are considered the most profitable crops to raise.

The products of the leading crops of the State for 1866 were as follows, in round numbers: wheat, 14,000,000 bushels; barley, 11,600,000 bushels; oats, 1,860,000 bushels; hay, 360,000 tons; potatoes, 2,000,000 bushels; peanuts, 182,000 bushels; beans, 240,000 bushels; butter, 4,500,000 pounds; cheese, 2,100,000 pounds; wine, 1,800,000 gallons; wool, 5,230,000 pounds. Total value about $28,000,000, being several millions in excess of the gold products of the State.

Santa Clara, Solano and Yolo are the largest wheat-growing counties, aggregating more than half the crop of the whole State in 1866. In barley, Santa Clara, Monterey and San Joaquin take the lead, producing more than one-third of the entire crop. Santa Clara also leads in hay, cheese and silk; Mendocino in oats; Sonoma in potatoes; Sacramento in hops; Marin in butter; Santa Barbara and Los Angeles in wool, and the latter county in oranges, lemons, grapes, wine and brandy.

5. A variety of wheats are sown in California, but the white Australian appears to be the favorite, as it makes better flour, is productive, and rarely has any drawbacks in bad seasons; white Chili, Sonora and Club wheat are also sown in the interior counties. In Del Norte a white winter wheat is grown and preferred by many farmers because it is a winter variety, and also on account of the superior quality of its flour. In this county winter wheat is sown from September 1st to November 1st, and the spring varieties from February 1st to April 15, harvesting about the 10th of August; all grain sown by hand. In

Monterey wheat is sown from November to March, according to the amount of rain. Our Tuolumne reporter says "the land should be summer-fallowed, and the grain sowed before the first rains; it may be sowed as late as March, but is liable to injury by the drought; harvest last of May or June." In Yuba they sow from October to February, and harvest from 1st of June to 15th of July. None drilled.

Our San Francisco correspondent writes:

Seeding on summer fallow and dry-ploughed land has been done in September and October, but the experience of our farmers is that wheat sown prior to March in good seasons produces favorable crops. Harvesting of barley commences in the southern part of the State early in May; wheat is generally two weeks later, most of the crop being gathered in June, new wheat coming to market about the 1st of July. Ploughing is, on an average, not over four inches deep, some being only three inches, while in exceptional cases the soil is disturbed from six to twelve inches, but such instances are very rare. A practice called "volunteering" prevails among farmers, which consists of simply harrowing by implement, or, in many cases, brush-harrowing, viz: dragging limbs of trees over stubble, so that the waste grain of one harvest is made the seed for the next.

The average yield of wheat is reported at 20 bushels to the acre.

6. Of the natural grasses of California our Monterey correspondent says:

The most of our pasture plants are annual. In most places the *Erodium cicutarium*, or "alfileria," grows first, and immediately afterward the wild oats, *Avena fatua*. But in many places the first spring pasturage is furnished by two or three species of *Boraginaceæ*, viz: *Eritrichium chorisianum* and two other species. The cattle of all kinds eat these greedily and fatten on them. After these come up the annual *grasses;* two or three species of *Poa; Reardum jubatum*, *Polypagon monspeliensi*, &c.; and later in the season the perennials, such as the "bunch-grass," *Festuca scafrilla*, "grama," *Bizopyrum spicatum*, and *Elymus arenarius*, &c. Stock cattle are not fed at all here. They pasture 12 months.

Wild oats, when cut at the proper time, are said to make the richest hay. When there is sufficient range, horses, cattle and sheep pasture the entire year, the rainy season not excepted. In the greater portion of the State the natural grasses are turned into hay while standing, the extreme dryness of the climate being the cause. Cattle feed on this dried grass, which is very nutritious until the rains come, which destroy all the nourishment. When the rains come early, in October or early in November, the new grasses spring up in a few days, and if they get three or four inches high, frost does not stop their growing, and stock have excellent feed the season through. When the rains come in December, followed immediately by frost, cattle suffer greatly, and large numbers of horses, sheep and cattle are lost. The crop of natural grasses, when not fed down too much, seeds itself and yields from one to two tons of hay per acre.

Our Tuolumne reporter says that pasture is good from March to October, but stock will subsist the entire year. Usually the only expense is cost of herdsmen. Several correspondents estimate the cost of pasturing stock at from 50 cents to $2 per head per month—the average $1 per head.

7. The fame of California as a fruit-growing State is too widely extended to need lengthy notice in this chapter. The capabilities of the entire valley lands of the State, and also the foot-hills of the mountain range, to produce fruit, are perhaps unsurpassed if equalled in any part of the world. All the fruits of the temperate zone flourish well, and such semi-tropical fruits as oranges, figs, limes, citrons, olives, almonds and pomegranates are produced in great abundance. It is difficult to say which kind of fruit is most profitable, as all pay well until the supply exceeds the local demand. At present it is said that almonds and Madeira nuts pay best, though figs and oranges are quite profitable.

Our Toulumne correspondent says that grape-vines bear a good crop the third year from the cutting. Vineyards produce from four to five tons of grapes per acre, or from 500 to 700 gallons of wine. Grapes for wine-making sold last season at $30 per ton. The price of wine one year old varies from 40 cents to $1 25 per gallon, according to quality. Apple, pear, peach, plum, cherry, fig, orange and pomegranate come into bearing the third year, and produce good

crops. The price the past season for best apples, pears and peaches, was $40 per ton; plums five cents per pound. Our Yuba correspondent says:

Nearly all the fruits are adapted to our soil and climate. The apple, peach, plum, nectarine, apricot, cherry, quince, pear, fig, pomegranate, orange, lime, lemon, currant, etc., not only do well, but excel anything I ever saw. The grape, for wine and raisins, is perhaps destined to be one of the fruits most extensively cultivated. The yield is immense, and the profit very great. A vineyard of ten acres will yield a clear profit of $5,000 per annum, and orchards from $250 to $1,000 per acre, according to the kinds of fruit.

A correspondent in Amador says that he gathered three crops of apples from the same tree last year.

Los Angeles had, in 1866, nearly 2,000 lemon trees, 9,000 orange trees, 3,000,000 grape-vines, and made 600,000 gallons of wine and 20,000 gallons of brandy. Sonoma had over 2,800,000 vines and made nearly 200,000 gallons of wine and nearly 7,000 gallons of brandy. Santa Clara had 2,000,000 vines. In the State, according to the assessors' reports, there were, in 1866, nearly 1,700,000 apple trees, 480,000 pear trees, 1,090,000 peach trees, 234,000 plum trees, 28,000 almond trees, 17,000 English walnut trees, 13,000 olive trees, 3,000 lemon trees, 11,000 orange trees, and nearly 20,000,000 grape-vines—the numbers of each rapidly increasing.

OREGON.

1. From Oregon our reports are quite meagre; but four counties—Columbia and Multnomah on the northern border, and Lane and Douglas in about the centre of the tier of coast counties and of the settled portions of the State—returning answers to our circular. Columbia reports an increase of 50 per cent. in the value of farm lands since 1860, and Multnomah puts the advance as high as 100 per cent. Our Lane reporter writes:

Probably about 10 per cent.; but lands do not change owners in general, so as to ascertain the exact rate of increase; and we have to estimate chiefly by what the farmers seem to think their lands worth.

In 1860 the gold mines in Douglas attracted settlers; and the agricultural lands were taken up in small farms, and more cultivated than at present; but the mines having failed, and the population attracted thereby dispersed, the farms are in fewer hands, and much that was cultivated is now in pasture. No advance in price.

2. Lane county returns $2 per acre as the average value of unimproved lands in that county; a portion prairie, but mostly adjacent to hills or mountains; quality various—some quite good, but the declivities and barren hills detract from the immediate value of many tracts. In Columbia $3 50 is the average per acre; mostly timber and brush land; such timber as yellow and white fir, hemlock, spruce, cedar, soft maple, ash, and alder. In the eastern part of the county it is black mold underlaid with clay; advancing west it changes to a light sandy loam; will produce good grain, grass, and vegetables. The average in Multnomah is $1 50 per acre, including government lands; chiefly dry, timbered lands of fine quality, cedar, ash, oak, maple, and hemlock; capable of raising all kinds of grain and fruits suited to the latitude. Much of the surface of Douglas county is mountainous, and most of that which will serve for pasture is in private hands; but as there are still government lands vacant, unimproved lands cannot rate much above the minimum for public lands. Probably two-thirds of the lands of the State are for sale at government prices; settlements now being principally confined to a strip bordering upon the Pacific and embracing about one-third of the area of the State.

3. Columbia and Multnomah report iron ore in great abundance, and the former also coal and salt, with but little development beyond sufficient to demonstrate the presence of the minerals in large quantities, of superior quality, and easily worked. Both gold and silver are found in Douglas county, but not in large

quantities, and few of the mines are worked at present. The mountains are heavily timbered with fir, cedar and pine; the hills with oak and other deciduous trees.

4. Vegetables, fruit, and hay are the principal crops in Columbia, and are cultivated with success in large quantities and with profit. Vegetables and fruit are also largely and profitably grown, together with general crops, in Multnomah; whilst in Lane wheat is the staple, but oats and potatoes are successfully grown. Wheat yields from 20 to 30 bushels to the acre, and often weighs 62 to 64 pounds per bushel. Oats are superior; 25 to 40 bushels per acre; weighing 36 to 40 pounds to the bushel. Peas grow well, but are troubled with the bug or fly. Corn yields a fair crop, not very large, but of good quality. Barley does very well. Our Douglas reporter says:

Wool is the crop and sheep the specialty in this valley. Fine wool sheep have been mostly sought; but owing, as farmers suppose, to the long-continued rains of winter, sheep of the merino grades are not so healthy as the straight-wooled varieties, which now seem to be favorites.

White winter wheat and common red-chaff spring wheat are grown in Columbia; but the white is preferred as making the best flour. It is almost impossible to sow spring wheat, on account of the rain, so as to ripen in season to harvest before the fall rains set in. White wheat is also preferred in Multnomah for the same reasons. The Rio Grande, Club, and Mediterranean are grown in Lane, but the winter varieties are mostly raised. The winter wheat is sown in August and September, and the spring seed in March and April, as most practicable. Harvest commences the middle of July with the fall-sown crop, and extends into September for the spring grain. The seed is chiefly sowed broadcast; much being sowed after the plough and harrowed in. Our Douglas correspondent says that—

Owing to expensive transportation no more grain, fruit, or vegetables are raised than are needed for home consumption. Of wheat the Oregon smooth-head is preferred as best suited to the soil and climate; the fairest staple and about as productive as any other; sown broadcast any time from September to March when the ground is in order to receive it.

6. Our Columbia correspondent says that timothy and white clover grow almost spontaneously, he having a field of clover and timothy mixed (five acres) upon which no grass-seed was ever sown, except what may have been scattered by the birds and the cattle, from which he has cut annually, since 1861, three and a half tons per acre. Orchard grass and blue grass also do well. Cattle can subsist upon pastures all the year, except when the ground is covered with snow; expense about 50 cents per month per head. Stock will do well upon pastures alone about eight months of the year, as reported from Multnomah, where the cost per head, upon tame pastures, is estimated at about $12 per head for the season. In Lane the pastures are mostly what is called bunch grass, together with some of the larger kind of marsh grass, so common in the western States, though not so rank; but, being thick in the ground, yields good feed, excepting when injured by summer drought. About six weeks in winter and the same in summer dry weather the feed is short, but the rest of the year stock can do very well. The cost of pasture ranges from 75 cents to $2 per month, the latter for convenient pastures near towns. Young stock is allowed to range upon unfenced lands. In Douglas the bunch grass on the hills and a variety of red-top in the valleys are the most valuable wild grasses. Almost all the tame grasses succeed, but timothy above all others.

7. Apples, peaches, pears, plums, cherries, quinces, berries in variety, grow abundantly, and our correspondents claim superiority for their State in the culture of fruits adapted to that latitude. Our Lane reporter writes as follows:

For most kinds of fruit this country is very good indeed. Apples and pears do the best; peaches tolerably; cherries, though uncertain, are a good crop. The small fruits do exceedingly well—gooseberries, currants, Lawton blackberries, and black and red Antwerp raspberries yield profusely. Strawberries are a very singular crop; when they fruit, they yield

remarkably and of fine quality; but some seasons they blossom and do not bear, and yet not killed by the frost. Apples yield from 100 to 300 bushels per acre, the trees being yet small, though the crop is sure every year.

In Douglas all kinds of fruit suited to the temperate zone succeed well; apples, pears, and plums better than in the Mississippi valley; peaches and cherries not so well. The yield is abundant and the fruit fine; but as yet there is no market, and the surplus is fed to the hogs.

WASHINGTON TERRITORY.

1. From Washington Territory, occupying the northwestern extreme of the republic, north of Oregon and south of British Columbia, our returns include Clallam, the most northern, and Pacific, the most southern county; Wahkiacum and Clarke, (back of Pacific, on the Oregon border,) and Walla-Walla, a large county in the southeast. Owing to the decline of mining operations in British Columbia and the high tariff upon produce imported into Victoria, the price of farm land has decreased 50 per cent. since 1860. In Pacific there has been little or no change. Improved land is worth $10 per acre, chiefly confined to river bottoms. There is an increase of about 50 per cent. in Wahkiacum and 25 per cent. in Clarke, though in a few instances in the latter there has been a decline, owing to the freshets in the Columbia river. Walla-Walla reports an increase of 50 per cent. also, making the average increase of 25 per cent. for the counties reporting.

2. The average value of wild or unimproved lands in Clallam is $1 25 per acre, covered with a dense growth of heavy timber. When cleared the high land is capable of producing good crops of wheat, oats, barley, &c., and the low lands will yield, in addition to the cereals, abundant crops of hardy vegetables. The same average price rules in Pacific; land said to be of little value except for timber. Lands entered, but unimproved, in Wahkiacum have advanced 50 per cent. since 1860. There is still much government land in this county; but it is generally hilly and covered with fir timber, which will not pay for clearing. The settled land is chiefly valley—heavy, rich alluvial soil, suited to the cereals and vegetables. Clarke county averages $1 25 per acre and Walla-Walla $2, the former mostly uneven and heavily timbered with fir; soil about second quality; no vacant prairie land. In the latter county the land is prairie, good for wheat and splendid for grazing. There is a vast quantity of government land remaining for sale or subject to entry under the homestead laws or soldier's warrants in this Territory.

3. In the counties named no mineral resources of consequence, except coal, have been developed as yet. Coal is said to exist in large quantities in some localities. Timber is abundant. Our Clallam reporter says:

> The whole of this county, with the exception of about 3,500 acres of open land, is covered with a first-rate quality of timber, the principal part of which is red fir; the next in quantity being cedar, white pine, spruce, maple, and hemlock. The red fir that is within easy hauling distance of the salt water is being rapidly taken to the adjoining county and manufactured into lumber.

In Pacific the tide-land spruce furnishes excellent timber for shipbuilding, in addition to which there is an abundance of fir, hemlock, and cedar timber; but as yet little has been done to make it a source of revenue. In speaking of resources of the soil, our Wahkiacum reporter says:

> The valley land is almost inexhaustible. I have examined it down 10 feet and found it about as rich as it is at the surface. In the valley the principal timber is soft maple, alder, with scattering spruce, very thick underbrush. It costs from $25 to $50 per acre to clear it.

4. Beef and wheat are the staple productions of Walla-Walla county, its extended prairies furnishing a rich grazing region. Our Clarke reporter writes as follows:

> Wheat, hay, and apples are our chief crops. Wheat is cultivated by nearly all the farmers; average yield about 25 bushels per acre; yield of the county this year, (1867,) 75,000,

of which 55,000 was winter wheat. No rust, no weevil, very little smut, sound and healthy; average price $1 in coin; cost, 80 cents per bushel; net profit, 20 cents per bushel, $5 per acre in coin. Hay, mostly herds-grass, averages two tons to the acre; about 3,500 acres cultivated; 7,000 tons of hay, worth $8 per ton. In clover, 300 acres, two crops a year; two tons per acre; worth $12 per ton. Apples by far the most profitable; winter varieties worth 60 to 70 cents per bushel.

Potatoes are the staple crop in Wahkiacum, the yield being about 300 bushels, of 60 pounds, to the acre under the best cultivation. Our correspondent made last year a net profit of $75 per acre.

From Pacific our correspondent writes as follows:

The business which employs the most men here, and the greatest amount of capital, is the cultivation of oysters. From 60 to 70 men are employed, with a corresponding number of sloops, boats, scows, &c., in transporting them from the natural to private beds. By an act of the legislature every citizen is granted 10 acres where there are no natural beds of oysters. This ground is covered with young oysters at a cost of about $180 per acre, 3,000 baskets being about what one acre will grow. These are fit for market in from three to five years, and bring $1 per basket. The cost of gathering is about 25 cents per basket, aside from the first cost of planting. The amount of oysters annually shipped from this shoal water is about 40,000 baskets, the greater part going to San Francisco. About 5,000 baskets are sent to Oregon. The past winter has been very hard on the oystermen, many thousand bushels of oysters having been killed by the severe cold weather.

5. In Clarke county white winter wheat is mostly sown, it being considered the most productive and making the best flour. Slender Straw Spring, Noe Island, and Hybrid, are also cultivated, the latter being the best spring variety. Winter wheat is sown in September and October, and harvested in August; spring wheat sown in March and April, though sometimes as early as February, and harvested in September; but small proportion drilled, being generally sown broadcast, upon ploughed ground, and harrowed in. The Mediterranean spring wheat is preferred in Clallam, being less liable to smut than other kinds tried; none drilled; sown in March; harvested in September. There is very little wheat cultivated in Pacific or Wahkiacum, though the climate and some of the soil are well adapted to its growth. The white club spring wheat is grown in Walla-Walla, winter varieties generally freezing out.

6. White clover, wild red top, bunch grass, a coarse wide blade swale grass, and a kind of winter grass, a coarse variety between English rye and blue grass, growing upon the upland, are the principal natural grasses. Red clover and timothy are successfully cultivated. Our reporters in Pacific and Walla-Walla state that stock will subsist upon pastures and do well all the year; in Clallam and Wahkiacum eight months are given as the limit during which cattle can subsist exclusively upon pastures; and in Clarke seven months, at a cost of $3 per head. The estimated cost in Clallam is $12 per head for the season.

7. All our correspondents report favorably upon the capabilities of the Territory for fruit culture. Our Clarke reporter answers the questions as follows:

Apples, pears, plums, cherries, gooseberries, raspberries, strawberries, currants, and blackberries, are well adapted to our soil and climate. Peaches and grapes not so well suited. Of apples, the Roxbury Russet, Rhode Island Greening, Pearmain, Spitzenburg, and Jersey Sweeting, bear at the age of four years from grafting, if set out at one year old.

Our Wahkiacum reporter says apples grow so abundantly that they will not pay to market; hence he turns them to profit by feeding them to his hogs, for which purpose he thinks them better than potatoes.

In Pacific apples, pears, and plums grow in abundance. Apples sell at 50 cents per bushel. The orchards are all young, and little or no fruit is yet shipped from the county. Our Walla-Walla correspondent says:

This is one of the best countries in the world for apples, pears, plums, peaches, cherries, grapes, &c. Four years ago I planted 1,000 small yearling trees. Last season I had 1,000 bushels of fine fruit, 800 bushels of which were peaches. This fruit was sold at from $4 to $12 per bushel in gold.

NEW MEXICO.

1. Our returns from the Territory of New Mexico embrace the counties of Mora and Valencia. Mora county reports 25 per cent. advance in the price of farm land since 1860. In Valencia there appears to be no settled price. If a person wants to purchase, he is asked an exorbitant price, and whoever wants to sell must sell for almost nothing.

2. The wild lands in Mora are of no value except where timber is plenty; they are chiefly mountain and prairie, good for hay and pasture only.

In Valencia lands held by private parties fluctuate in accordance with the necessities of the holder or the wants of the purchaser. There are large tracts of land, however, subject to entry under the homestead laws, or purchase at government prices. They are at some distance from settlements, and are visited by hostile Indians. The country is very mountainous, but has rich valleys in which almost anything will grow to advantage, when water can be procured for irrigation.

3. Gold, silver, copper, iron, lead, cinnabar, gypsum, quicksilver, and coal, abound in the districts reporting. The Moreno mines (gold) are in the northern part of Mora county, about 50 miles from the town of Mora. A company has been organized with a capital of $100,000 to work these mines. Coal is found in great quantities in Valencia county, in addition to gold, silver, iron, lead, copper, and quicksilver, all of which may be worked to advantage as soon as the government gives reliable and permanent protection against the Indians. The mountains are rich in timber, mostly pine and ash, with some oak, and in the valley of the Rio Grande a great deal of cottonwood is encountered.

4. The special crops in Valencia are corn and wheat; and in Mora corn, wheat, oats, beans, and peas, the profits in the latter county being about 50 per cent., with very little labor. The farming implements used are for the most part a century behind the age. The plough in general use consists of a wooden pole, with a sharp iron point, and with a wooden handle to it. The threshing of wheat is done by horses, mules, sheep or goats, kept running over it until the wheat is threshed out, by which process the straw gets chopped up and is left to decay.

5. Spring wheat is chiefly grown in New Mexico, because they have no fences to protect winter wheat, and the winters being very soft, the snow is very light, and remains on the ground but a short time. There are two kinds of wheat reported; one is called the New Mexico wheat, which is a dark, small grain; and the other of lighter color called the Sonora wheat. Some prefer the former as heavier and more substantial, while others prefer the Sonora, because it ripens earlier and yields a whiter flour. The sowing is mostly done in Valencia in March, and the harvesting in July and August; and in Mora county it is sown from 15th of March to 1st of May, and harvested from 25th of August to 10th of November. None drilled.

6. The grasses in the Rio Grande valley are not of so much account as upon the hills and elevated plains, where there are four kinds of very rich gramma grass. There are also different kinds of herbs upon which sheep thrive well during the different seasons of the year. On the pasture lands off from the settlements stock can feed and remain fat all the year round, without shelter. The cost is only the wages of the herdsmen, who receive from $10 to $20 per month and rations. Indians often kill the herders, however, and drive off the stock.

7. Fruits have not received much attention in Mora county, but apples, peaches, plums, and apricots are best adapted to the climate. Our Valencia reporter says:

> The capabilities of this country for fruit are undoubtedly very great, if we may judge by the orchards of the Puebla Indians, eight miles north of this point, (Los Lunas.) They grow elegant peaches and splendid grapes, and fair apples, plums, and apricots. The middling quality of the fruits last named is not to be attributed to a deficiency in soil or climate, but rather to the fact that grafting is not practiced.

WINE GROWING IN CALIFORNIA.

[As represented at the Universal Exposition at Paris, in 1867.]

SIR: In response to your request for information respecting the wine-growing and the wine-production of California, made during your examination of the California samples at the Exposition, I now have the pleasure to send you the following interesting résumé of the subject which I have recently received from Mr. Carmany, editor of the Annual Review of the Mining and Commercial Interests of the Pacific States.

This article describes better than anything I have been able to prepare the present condition of the wine-producing interests of California.

I have inserted one or two paragraphs upon the soil of the vine regions, and have appended a list of the exhibitors of California wines.

Very respectfully, yours,

WM. P. BLAKE,

State Commissioner, California, to the Universal Exposition of 1867, *and Special Agent of the California Wine-producers' Association.*

Hon. MARSHALL P. WILDER,

Chairman of Committee No. 9, *Universal Exposition at Paris,* 1867.

WINE-GROWING INTEREST OF CALIFORNIA.

The wine-growing interest during the past three years has been rapidly increasing in importance, and if unfavorable circumstances do not intervene within the next decade, will probably outrank in value any single agricultural product in the State. Our wine-growers find a great variety of soil admirably adapted for vineyards, in conjunction with a climate, or rather climates, which are more favorable for wine-making than can be had in any portion of Europe. On the rolling lands and foot-hills on both the Sierra Nevada and Coast Range of mountains, which form the eastern and western boundaries of the State, the soil, though varying somewhat in composition and proportion of ingredients, is mainly formed by volcanic debris which produces grapes in the highest degree of perfection known.

The soils along the slope of the Sierra Nevada present a great variety in their appearance and composition. Some are derived chiefly from the disintegration of granite and metamorphic rocks, and others from clay-slates or sandstones or from a mixture of these materials with disintegrated lavas. In extensive regions along the foot-hills the soil is formed chiefly by the breaking down of lava and tufaceous deposits, or of the alluvions of ancient rivers which are charged with materials of volcanic origin. Some of the soils in the gold region which produce good grapes are quite red from the abundance of the sesquioxide of iron; in others oxide of iron is in small quantity and the soil has the ordinary clay color. In favorable locations very little irrigation is required, and in some places it is not necessary. Where there are mining canals or ditches along the hill-sides many vineyards below them receive water enough by percolation to sustain the vines during the most severe droughts.

The vines, as a general rule, bear abundantly, the exceptions being in a few localities subject to late frosts in the spring, or occasional heated terms of a few days during some summers. These exceptions, however, are fully equal in productiveness to the average vine lands of France and Germany, and are only mentioned here to show that there are occasional imperfections in a climate that would otherwise be without blemish for wine growing.

The introduction of cultivated vines dates in California back to the establishment of the missions of the Catholic priests, who first settled in the southern portion of the State in 1769. These priests brought with them three varieties of vines taken from the neighborhood of Seville, Spain, and which, it was believed, were better suited to the climate of California, and were more hardy and productive than any other kinds. Two of these vines (colored grapes) flourished well, while the third, a white grape, was soon discarded from cultivation. The names of the vines are not now known, and being long acclimated, some of the peculiarities of the original stock have been changed, so that it is probable the so-called Mission vines will never be identified with the parent stock in Spain. General Vallejo, who is probably the best authority in the State on the subject, claims that the larger portion of the native grapes, cultivated north of Monterey, are a different variety from those grown south of that town and commonly known as the Los Angeles grape. This statement is confirmed in part by the difference in size, color, shape of bunches and berries, and character of skin, the wine made in the different sections of the State also having distinct characteristics of taste and

aroma, which cannot easily be confounded together. For the purposes, however, of this article the vines introduced by the priests will be termed the native or Mission grape, as their product is to be considered in a commercial point of view.

California possesses the peculiarity of having distinct climates, as it were, in different portions of the State, the result of which is the production of a greater variety of wine than can be found in any one country in Europe.

Properly, the State should be divided into three wine districts, as the wines of each vary essentially from those produced in the others. For convenience sake we will name them the Los Angeles, Coast Range, and Sierra Nevada wine districts. The first includes all that portion of the State lying south of Point Conception, comprising Santa Barbara, Los Angeles, and other southern counties. The wine made in this district, when allowed to ferment fully, contains from 14 to 16 per cent. spirit, has no decided aroma or bouquet, while the flavor is indifferent, with considerable taste of alcohol. The wine from this section was the first marketed in the State, and in the absence of competition soon had a large domestic consumption. As the other sections of the State made wines, the demand for the Los Angeles variety decreased, until at the present time the great bulk of the wines sold in San Francisco and exported comes from the Coast Range district.

This district comprises the foot-hills and valleys on both sides of the Coast Range mountains from Point Conception to the northern boundary of the State, a tract of territory about 400 miles long by 40 to 60 miles wide. In it are included Sonoma and other valleys whose wines have a general reputation second to no others in the State. They possess the peculiarities of the claret, Sauterne, and hock wines to a very great degree, and are the only acid wines of that character produced in California. Port, Angelica, Muscat and other manufactured wines can be and are made in this district as well as in the others, but the fully fermented wines of Sonoma and other adjoining valleys have an abundance of tartaric acid, with a flavor, aroma, and bouquet not to be found elsewhere. Besides domestic consumption the acid wines of this district are fast growing into favor for exportation to New York and other markets, where, if received in good order, they are highly prized. The acid wines in this district contain from 12 to 16 per cent. spirit, mostly averaging about 13½ to 14 per cent.

Wines produced in the Sierra Nevada district vary materially from the others, the tendency being towards sherry, Malaga and similar styles of wines. With few exceptions they are of a straw color to brown, are dry in taste, and have a most decided flavor, bouquet and aroma. Very limited quantities of red wines are produced in this district, the grapes containing little coloring matter compared with the same variety grown in the Coast Range district. From its advantages of climate, the season from April to October being continuously warm, and the vast area of country unfitted for any other production, this district promises eventually to be the greatest wine growing section of the State. The general quality of its products, when known, will commend themselves to parties who prefer Spanish and Madeira wines to those of France and Germany, and probably not many years will elapse before a vigorous competition will commence for the entire market of the United States. The average percentage of spirit in the wines of this district varies from 14 to 20 per cent., according to the manner of manufacture.

As stated in the commencement of this article, the wine-growing interest has been increasing rapidly within the last few years. According to the assessors' reports made to the surveyor general of the State for 1866, (the latest returns,) there were 19,710,814 vines planted, the largest counties being Los Angeles, 3,000,000; Sonoma, 2,830,195; and Santa Clara, 2,000,000. The total production of wine for the same year (by the same authority) was 1,791,633 gallons, of which Los Angeles county produced 600,000 gallons; El Dorado, 235,680 gallons; and Sonoma, 199,030 gallons. Of brandy there was produced in the same year 127,140 gallons, the largest counties being Los Angeles, 70,000 gallons; Sonoma, 6,838 gallons; and Sacramento, 5,714 gallons. The assessors' returns are known to be greatly understated in the actual quantities of vines planted and wines and brandy produced. Competent and and well-informed parties put the number of vines actually planted in the spring of 1866 at fully 30,000,000 in the State, and the product of wine for that year at least at 2,500,000 gallons, and of brandy at least 200,000 gallons. For 1867 it is believed the wine crop was fully 3,500,000 gallons, and about 400,000 gallons of brandy. This amount is comparatively small to the product which may be expected in a few years, as in 1870 every vine planted in or before 1866 will be in large bearing. Besides this large number of vines then planted, a great increase will have been made, as new vineyards are being set out every year, and old ones added to, throughout the entire State. It is estimated that at least 3,000,000 cuttings are planted each year, and the practice will doubtless be kept up, in case profitable markets for wine can be had. Among the most gratifying features of this interest in this State is the steady improvement in quality of wine, showing care on the part of the grower, both in the making and after-keeping of the product. The minds of the wine-growers are also fast being disabused of a very common fallacy, that all varieties of European wines can be made from the Mission or Los Angeles grape. This change of opinion is insuring the propagation of the best varieties of foreign vines, both white and colored, hardly a vineyard now being set out which does not contain a large number of cuttings from the most famous varieties of France, Germany, Spain, and Italy. The varieties which are most in request for the purpose at present are the black Zinfindel, a Hungarian seedling of the black Pineaux, the true cham-

pagne grape of France; the white Johannisberger, and green Reisburg, and red Traminer of Germany; the white Malaga, Alicante, and Muscatella of Spain; Fihel Zagos and white Tokay of Hungary; the white and golden Chasselas, white and black Pineaux, Orleans, Chacelos du Foye, Montillardo and Catalyac of France, and the Verdelho of Madeira. All these varieties have been tried in the Sierra Nevada district by various parties, the most successful and largest grower being B. N. Bugby, of Folsom. This gentleman has for several years been experimenting in wine-growing, having some 72 varieties of grapes in 56 acres of vineyard, all in full bearing. In 1866 he made separate wines of 19 different kinds of grapes, and in 1867 made 14 varieties of wine, some of them being made from mixed grapes. The result in every case where proper care was taken was the production of wines superior in many respects to those made from the Mission or Los Angeles grape. In Sonoma valley and Napa county several of the above-named varieties have been planted in large numbers, and not many years will pass before varieties of wine will be had in that district which will safely challenge the best wine of Europe to contest for superiority with them.

The great want of growers at present is more extensive markets for their wine, the home consumption being already largely supplied, so that but small increase in the local demand may be expected. Efforts are now being made to introduce the finer grades of wine, without chance of adulteration or injury during shipment, it being shipped per steamer, in glass in cases, so as to insure against all the above contingencies.

In the distilling of grape brandy in California great progress has been made during the last three years. Prior to that time almost the total product was distilled from pumice, the skins, stems and seeds of grapes after pressing. Where red wines had been made the pumice in many cases had fairly rotted before distillation took place, while in others the fusel oil contained in the seeds by crushing was set free to be vaporized with the spirit, it being a more volatile fluid. The brandy was made in the commonest kind of whiskey stills, which, combined with lack of practiced skill in making grape spirit, caused the production of an article that was full of gross imperfections, and had to be rectified before it was in fair marketable condition. The great increase in the wine crop in 1865 lowered prices so much that large quantities of wine in that and succeeding years have been made into brandy, while the stills have also been much improved in construction, as well as the skill of those using them. The result of these changes has been the production of a better class of brandy, which, in some instances, has been considered by good judges fully equal in quality to the best brands of France of similar age. That our brandy is improving is noticeable from the fact that it is now being extensively used in private dwellings, where French brandy only has heretofore been used. Among other enterprises inaugurated in this city during the past year has been that of the Pacific Refining Company, who rectify and improve the commonest kinds of grape spirit, so that it resembles in taste and aroma the medium grades of French brandy. Some of this brandy has been sent to New York, where it is reported to have been highly valued, and large orders are said to have been received for it to be shipped to that place. The time is not far distant when both wines and brandy from California will be found on extensive sale in all portions of the Union, and on their intrinsic merits be considered equal to any varieties imported.

The business of manufacturing sparkling wines or champagne on this coast has made great progress within the past year, and, in fact, the successful manufacture in California of pure sparkling wine with good bouquet and aroma is now admitted by all who have taken interest enough to inform themselves on the subject. The attempts at making sparkling wine in this State have extended over a period of 13 years, and although progress has, in some instances, been made towards producing a fair quality of wine, still the manufacture has always been uncertain both as to quality and quantity, until the present time. In speaking of sparkling wine or champagne it is meant wine produced by natural fermentation in the bottle. This definition is particularly made to avoid confounding it with a fictitious effervescing wine that has been manufactured here very extensively for a number of years, and by its bad reputation has much retarded progress in true wine making. This last wine is made by putting ordinary still wine, sweetened and flavored, into bottles, into which carbonic acid gas is forced through the use of a soda fountain. The result is a liquid that gives headache, nausea, and general derangement of stomach to those who drink it, while wine made through natural fermentation is strictly healthful, and is prescribed by many physicians to convalescent patients as being more wholesome and stimulating than brandy of the best quality. The first attempts to make sparkling wine by natural fermentation in bottles was by Sansevaine Brothers, in 1855 and 1856, in San Francisco, they importing an expert from France for the purpose. After experimenting two years without success they abandoned the attempt, and the same expert was engaged (after a visit to France) by Crevolin Brothers, who were also unsuccessful. The next party to try was Colonel Haraszthy, who failed, and was succeeded by the Buena Vista Vinicultural Society. This society commenced operations in 1863, and at great expense, after many attempts, succeeded in making limited quantities of good wine, which has been sold in this market during the past two years. Some idea of the difficulties attending the making of sparkling wine may be had from the fact that the different parties named expended over $200,000 before even partial success was attained. This is a comparatively enormous sum, but the following brief sketch of the operations of the Buena Vista Vinicultural Society, at their establishment in Sonoma valley, will show some of the risks in

wine making. This society commenced in 1863, by putting up 9,000 bottles of wine, which, failing to sparkle, were uncorked and the wine sold for vinegar or distilling. The next year they put up 72,000 bottles, of which they sold between 500 and 600 dozen, and had to uncork the balance and dispose of as in 1863, for making vinegar, &c. In 1865, they put up 42,000 bottles, which, fermenting too vigorously, after losing 50 per cent. by breakage, the balance had mostly to be uncorked to save the bottles. The wine uncorked was sold for the same purposes as in preceding years. In 1866 they put up about 40,000 bottles (a portion of which is still in process of manufacture,) from which the officers of the society expect, in connection with the 1865 wine, to market about 2,000 dozen. In 1867 the society put up 90,000 bottles of wine, which, it is expected, will prove of excellent quality. All the wine used by the foregoing named parties was of the California grape, and considered well suited for champagne making (This wine received "honorable mention" at the Paris Exposition, this being the highest grade of prizes awarded to any American wine.) In the spring of 1867, Isador Landsberger, who had associated with him Arpad Haraszthy, concluded to attempt the making of sparkling wine in this city, the latter named gentleman having been educated in France and served an apprenticeship for several years in some of the best champagne making establishments in that country. Making experiments with small quantities of wine, and using artificial heat to stimulate fermentation, these parties, after several failures, succeeded in making an excellent quality of wine, and at once engaged in manufacturing to supply the market. The first wine for sale was put on the market about the 10th of September last, since which time Mr. Landsberger has delivered an average of 200 dozen per month, say 750 dozen in all. The demand for this wine has been in excess of its production, so that preparations have been made to extend the manufacture in 1868 to an average of 600 dozen per month, deliveries at that rate to commence in April next. Finding it difficult to obtain wine of suitable quality for the manufacture, the proprietor of the enterprise purchased in advance 20,000 gallons of wine, the product of a desirable vineyard in Sonoma valley, and had the wine made according to instructions at the late vintage. The method of making the wine was different from the ordinary manner, and the result was so favorable that the wine was found of the desired quality and fit to remove to this city within a month of the grapes being pressed. Believing that wine made in whole or part from foreign grapes would possess a finer bouquet and aroma, Mr. Landsberger has bottled considerable Muscatel, white Muscat and Reisling wines, which are now in course of manufacture. From the manner in which the wine is ripening, it is believed that a wine resembling sparkling Moselle in its most valuable qualities will be produced. The manufacture of sparkling wines of good quality in California will not only benefit wine growers generally, by giving them a new market for their product, but will also drive out in time imported champagne, not only from this State but from the other sections of the Union. The home market of itself is a large one, the importation of French champagne in 1866 being over 11,000 dozen, which cost, duty paid, laid down to importers, fully $200,000. The importations for 1867 were still larger than those of the preceding year. The lowest-priced champagnes sell at $15 per dozen: the second quality at from $20 to $22; and the best at $28 to $36 per dozen. The wine made by Mr. Landsberger is fully equal in quality to the second-class imported champagnes, and is sold for about half the price. Competent and disinterested judges who have examined the wine state that it will, in time, take high rank for its excellence, it needing a little age before drinking, and possibly a somewhat different flavoring. In the latter respect experience has shown that the ingredients used in France to flavor do not produce the same taste in California wines; also that the latter need no addition of brandy in making, as is the case in Europe.

BRITISH AGRICULTURAL STATISTICS, 1867.

Total acreage and percentage proportions of each kind of corn and green crop in each division of the United Kingdom.

Description of crops.	Years.	England.		Wales.		Scotland.		Total for Great Britain.		Ireland.		Isle of Man.		Channel Islands.				Total for United Kingdom.	
														Jersey.		Guernsey,&c.			
		Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per ct.	Acres.	Per ct.	Acres.	Per cent.
CORN CROPS.																			
Wheat	1866	3,126,431	42.4	163,862	21.8	110,101	8.1	3,350,394	36.2	299,190	13.7	8,075	29.6	2,702	86.0	990	48.5	3,661,351	32.0
	1867	3,140,025	42.4	116,733	22.4	111,118	8.2	3,367,876	36.3	261,908	12.4	7,821	28.9	2,352	83.2	968	44.9	3,640,925	31.9
Barley or bere	1866	1,877,387	25.5	146,323	28.1	213,619	15.6	2,237,329	24.2	152,520	7.0	7,736	28.4	111	3.5	532	26.1	2,398,228	20.9
	1867	1,892,338	25.6	148,340	28.4	218,486	16.0	2,259,164	24.3	172,657	8.1	7,386	27.3	137	4.8	623	28.9	2,439,947	21.3
Oats	1866	1,503,990	20.4	251,893	48.3	1,004,040	73.5	2,759,923	29.8	1,699,695	78.2	11,010	40.4	288	9.2	428	21.0	4,471,344	39.0
	1867	1,506,361	20.4	247,006	47.4	997,120	73.1	2,750,487	29.6	1,659,412	78.5	11,347	42.0	303	10.7	449	20.8	4,421,998	38.7
Rye	1866	50,570	.7	2,452	.5	7,055	.5	60,077	.6	7,794	.4	9	.....	13		27		67,920	.6
	1867	42,675	.6	3,124	.6	7,066	.5	52,865	.6	7,673	.4	29	.1	21		30		60,618	.5
Beans	1866	492,586	6.7	3,534	.7	28,537	2.1	524,657	5.7	12,204	.6	320	1.2	15	1.3	43	4.4	537,239	4.7
	1867	505,539	6.8	3,435	.7	27,324	2.0	536,298	5.8	11,153	.5	255	.9	12		37	5.4	547,755	4.8
Peas	1866	314,206	4.3	3,010	.6	3,188	.2	329,404	3.5	2,630	.1	116	.4	13		21		323,184	2.8
	1867	312,409	4.2	2,766	.5	2,915	.2	318,090	3.4	2,354	.1	201	.8	2		50		320,697	2.8
Total corn crops	1866	7,365,170	100.0	521,074	100.0	1,366,540	100.0	9,252,784	100.0	2,174,033	100.0	27,266	100.0	3,142	100.0	2,041	100.0	11,459,266	100.0
	1867	7,399,347	100.0	521,404	100.0	1,364,029	100.0	9,284,780	100.0	2,115,137	100.0	27,039	100.0	2,827	100.0	2,157	100.0	11,431,940	100.0
GREEN CROPS.																			
Potatoes	1866	311,151	11.3	44,266	31.8	143,426	21.6	498,843	14.0	1,050,353	70.9	4,302	35.2	1,368	26.0	677	23.0	1,555,543	30.7
	1867	289,611	10.8	45,077	32.6	157,529	23.6	492,217	14.1	1,001,545	70.0	4,011	31.6	2,062	36.6	789	25.7	1,500,624	30.3
Turnips and Swedes	1866	1,610,610	58.3	62,442	44.8	478,990	72.2	2,152,042	60.4	317,198	21.4	7,246	59.4	1,812	34.5	217	8.4	2,478,545	48.9
	1867	1,621,123	60.2	67,927	49.1	484,800	72.6	2,173,850	62.2	335,711	23.4	8,170	64.5	1,547	27.4	142	4.6	2,519,420	50.9
Mangels	1866	254,081	9.2	3,864	2.8	852	.1	258,797	7.3	20,162	1.4	55	.5	701	13.3	216	7.3	279,931	5.6
	1867	253,937	9.4	3,345	2.4	841	.1	258,126	7.4	18,805	1.3	47	.4	730	13.0	244	7.9	277,952	5.6
Carrots	1866	15,598	.6	295	.2	916	.2	16,809	.4	3,798	.2	226	1.8	1,043	19.9	202	6.9	22,078	.4
	1867	14,722	.5	346	.2	855	.1	15,923	.4	3,360	.2	233	1.9	913	16.2	221	7.2	20,650	.4
Cabbages, kohl rabi, and rape.	1866	159,539	5.8	1,329	1.0	5,075	.8	165,943	4.7	49,949	3.4	69	.6	171	3.3	75	2.6	216,207	4.3
	1867	128,863	4.8	679	.5	4,150	.6	133,692	3.8	35,703	2.5	17	.1	159	2.8	152	4.9	169,723	3.4
Vetches, lucern, and any other crop, except clover or grass.	1866	408,933	14.8	27,069	19.4	33,998	5.1	470,000	13.2	40,145	2.7	310	2.5	158	3.0	1,521	51.8	512,134	10.1
	1867	383,478	14.3	21,013	15.2	19,864	3.0	424,355	12.1	37,128	2.6	192	1.5	225	4.0	1,527	49.7	463,427	9.4
Total green crops	1866	2,759,912	100.0	139,265	100.0	663,257	100.0	3,562,434	100.0	1,481,605	100.0	12,208	100.0	5,253	100.0	2,938	100.0	5,064,438	100.0
	1867	2,691,734	100.0	138,387	100.0	668,042	100.0	3,498,163	100.0	1,432,252	100.0	12,670	100.0	5,636	100.0	3,075	100.0	4,951,796	100.0

IMPORTATIONS, ETC.

Wheat from—	Imported.		Entered for home consumption.	
	1866.	1867.	1866.	1867.
Russia.....cwts..	8,937,199	14,025,236	9,028,935	14,159,861
Denmark.....do...	506,236	418,012	507,709	422,509
Prussia.....do...	4,401,409	5,572,263	4,416,663	5,603,694
Schleswig, Holstein, and Lunenburg.....do...	187,938	127,222	188,529	127,632
Mecklenburg.....do...	733,571	651,884	734,664	654,569
Hanse Towns.....do...	878,912	700,935	886,586	705,794
France.....do...	3,473,130	597,405	3,496,931	599,402
Turkey and Wallachia and Moldavia.....do...	528,433	2,446,638	529,739	2,455,311
Egypt.....do...	33,831	1,451,774	33,831	1,458,457
United States.....do...	635,239	4,188,013	639,852	4,219,966
British North America.....do...	8,789	683,127	8,789	684,492
Other countries.....do...	2,831,642	3,783,060	2,836,387	3,796,682
Total.....	23,156,329	34,645,569	23,308,615	34,888,369
Wheat flour from—				
Hanse Towns.....cwts..	347,012	444,710	348,351	450,941
France.....do...	3,640,320	1,234,742	3,666,740	1,242,719
United States.....do...	280,792	792,976	282,664	723,211
British North America.....do...	40,650	121,503	41,123	122,817
Other countries.....do...	663,506	1,069,038	665,597	1,075,361
Total.....	4,972,280	3,592,969	5,004,475	3,615,049

SEED WHEAT FOR THE NORTHWEST.

A letter has been received by the Commissioner of Agriculture, from Hon. Ignatius Donnelly, M. C., from Minnesota, enclosing a communication from the president of the Minnesota Agricultural Society, asking the aid of the department in procuring new varieties of spring wheat. The following extract from this letter is given:

While the lands are new we produce abundant crops of excellent quality, but by continuous cropping the yield rapidly diminishes in quantity and quality, falling off from 25 or 30 bushels to 20, 15, or even 10 bushels per acre. I am satisfied that this diminished yield is to be attributed to a degeneracy in the vitality of the seed more than exhaustion of fertility in the soil. Near me a field has produced 18 successive crops of wheat, yet a new seed on the 18th year brought the yield up to 21 bushels per acre.

The wheat relied upon in this State for general crop is called Fife, and has been in use for a number of years. This variety retains its reproductive properties better than any other we have yet tried. The Canada Club, held in high esteem some years ago, has completely disappeared; and so thoroughly are we convinced of the necessity for a further change that to devise means to renovate our seed forms the burden of our society discussions. From my own experience, I am convinced that could every farmer be furnished this spring with a new, good seed, adapted to our soil and climate, it would benefit the State from $2,000,000 to $3,000,000 in one year. If we plant but 1,000,000 acres, and gain but three bushels per acre, it would give us a clear gain of over $3,000,000 in money.

The following is the response of the Commissioner:

DEPARTMENT OF AGRICULTURE,
Washington, D. C., April 28, 1868.

SIR: Your favor of April 22, covering a letter from T. T. Mann, esq., President of the Minnesota Agricultural Society, relative to the reduction of the average of wheat production in Minnesota, furnishes additional evidence of the rapid deterioration of seed wheat under the mode of culture generally practiced in the west. Under the most favorable circumstances a change of seed may be desirable, from climatic or other causes; but, while so little regard to selection is paid, and so many causes of decline in vitality are permitted to exist, there

is a greater necessity for frequent introduction of samples of superior grain. I have endeavored to give efficiency to the distribution of cereals, not only by sending larger packages, but by discriminating in the selection of persons to test them, that inducements for a greater care in the experiment, and a probability of more general subsequent distribution, may better secure the beneficent aims of the department and accomplish better results for agriculture. To this end I have relied, and still propose to rely, upon boards of agriculture, and officers of agricultural societies, boards of trade, and such representative farmers as may be recommended by members of Congress and others.

It was my purpose to secure varieties of wheat for experiment the present spring, particularly for Minnesota and spring-wheat-growing States of the northwest, but was not able to satisfactorily execute my designs in the limited time from the date of my accession to this office and the period of spring sowing. I did succeed in obtaining a quantity of seed from Canada, which failed to answer my expectations, and I declined to permit its distribution.

It is my intention to make special efforts to procure new varieties of spring wheat (as well as winter wheat) for the section which you represent. The importance of the subject is fully admitted, and its promised pecuniary results are even greater than appears in your representation. I know of no single accomplishment possible for this department by which results so immediate and beneficial can be attained.

I am not prepared to indorse the suggestion of Mr. Mann, to send an agent to Minnesota, "rent a farm, plant it with new varieties of wheat, and sell the seed to farmers at a price sufficient to cover the expenses of the enterprise;" not so much because of the inherent impropriety of such a course, which is common under foreign governments, but from the popular (and I believe well-founded) opinion, that this government should advise and facilitate such enterprises, leaving to individuals the direction, pecuniary responsibility, and profit of them. Such a course is certainly more simple, safe, and, I imagine, will prove more satisfactory and beneficial in the final result.

Very respectfully, your obedient servant,

H. CAPRON, *Commissioner.*

Hon. I. DONNELLY.

AMERICAN PLOUGHS IN EUROPE.

The following notice of American ploughs at the Paris Exposition is translated for the Monthly Report:

American ploughs at the Paris exhibition, 1867, were few in number, but furnished a complete illustration of the excellent construction and solid execution of farming implements in the United States. With but few exceptions, all these ploughs were furnished with beams and handles of wood, but this was of such excellent quality, that wood in this instance, on account of its extraordinary toughness, withstanding the utmost amount of tear and toil, is to be preferred to iron most decidedly. With us, such an excellent material (white oak and hickory) is wanting entirely; otherwise it ought to be substituted for iron at once.

The form of the American smoothing board has been applied with us long ago, and wherever the soil is too cohesive for the Ruchadlo plough, it always has proved to be the best, as it holds a middle place between the long, sharp, and screw-like English board and that of the Ruchadlo plough, composed of two straight sides uniting above in form of a triangle. As the English board excels in heavy, tough clay soil, while the latter is adapted best to loose, falling ground, the American share is the best for a medium soil to be turned entirely upside down. All these ploughs exhibited were swing ploughs, sometimes with a stilting-wheel attached to the fore part of the beam, as also frequently used with us, while fore-carts, (running on two wheels to rest the beam,) such as are used in England and on the continent, seem to be but of little use in America.

The cutter is peculiar in most American ploughs: either a common cutter like ours, attached to the beam or to the share, in form of a vertical blade, as high as the plough is to go down

into the ground, one piece with the share itself; or at last a revolving cutter, attached below the beam. The latter arrangement seems excellent to cut turf and roots in marshy ground that is to be broken up.

The most interesting ploughs from America were exhibited by—

1. Collins & Co., Hartford, Connecticut. Collins & Co.'s ploughs are of different sizes, from three inches to one and a half feet in depth, otherwise built on the very same plan; thus the connecting irons, screws, &c., of one size will do for all the others. Their steel smoothing-boards, cast, according to statements, in polished forms, are highly polished, so as to warrant easy work. Their extraordinary lightness is another advantage, those for seven inches depth weighing forty, and those ploughing fourteen inches deep no more than ninety-five pounds.

2 Deere & Co., Moline, Illinois. The same as the former, except as to double or Ruchadlo shares with some numbers, on the Bohemian plan, of German, probably Westphalian, steel, as the manufacturers assure us. Sometimes the whole lower part of the share and both smoothing-boards are formed of one single piece. Their depth is very uniform, from 12 to 14 inches, (destined for prairie soil.)

3. Hall & Speer, Pittsburg, Pennsylvania, whose ploughs showed some essentially different qualities from those of other firms; rod-iron strongly-bent beams, shares with attached blade for cutter, and also a peculiar connection of the beam with the body of the plough, giving great firmness to the latter. The connection of all these parts is effected by means of screws, the heads of which are sunk, so as to afford an even surface. These ploughs are constructed of very different sizes, ranging from 60 to 150 pounds each, and from 10½ to 17 dollars, respectively.

4. Canadian ploughs, by Mahaffy in Brampton, Gray in Egmondville, and Duncan in Markham, all having rod-iron or cast-steel smoothing-boards, more like the English than like the American patterns, and instead of being concave they were convexed like those by Hornsby in England, and had very long handles. Those ploughs exhibited by Mahaffy and Gray had wooden handles and beams, while Duncan's were entirely composed of iron. Concerning their construction and technical execution, these Canadian ploughs were by no means inferior to those from the United States; their workmanship every way being worthy of imitation.

ENCOURAGEMENT OF SILK CULTURE.

The State of California has enacted a law for the encouragement of silk culture, to the following effect:

Each person growing and cultivating within the State, in a manner suitable for permanent silk culture, 5,000 or more mulberry trees of the age of two years, shall be entitled to a premium of $250. A premium of $300 will also be paid for each 100,000 silk cocoons, in good condition, provided no premium shall have been previously paid on any such cocoons.

The law shall continue in force for four years from April 2, 1866, and the act then passed for the encouragement of silk culture is repealed, and no person hereafter allowed premiums under both acts. The conditions and requirements of an act for the encouragement of silk culture, of April 25 and 27, 1863, shall apply to this act which shall take effect from and after passage.

METEOROLOGY.

[Compiled in the Department of Agriculture, from reports made by the observers of the Smithsonian Institution.]

APRIL AND MAY, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain fall, (in inches and tenths,) for April and May, 1868, at the following places. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MAINE.		°		°	°	*In.*		°		°	°	*In.*
Steuben	28	52	13	17	36.2	4.00	31	66	1	32	48.8	10.05
West Waterville	17	64	10	16	38.2	2.53	31	76	1,2	34	51.9	8.97
Gardiner	17	68	5,10,13	20	39.8	2.28	31	69	1,8	36	51.9	9.58
Standish	17	67	10	13	39.1	2.59	31	75	8	33	51.5	10.16
Norway	17	68	10	10	37.8	.....	28	72	2,8	32	51.7	.....
Rumford Point	16	67	13	10	39.0	1.95	.....	.....	.....	.....	.....	.....
Cornish	17	65	5,13	16	38.7	2.64	28,31	74	8	33	51.3	10.18
Cornishville	17	65	5	16	39.0	2.31	28	76	8	33	51.1	8.32
Averages	.....	.....	.....	.....	38.4	2.61	.....	.....	.....	.....	51.1	9.54
NEW HAMPSHIRE.												
Stratford	16,29	62	10,13	9	34.1	2.95	8	88	1,2	32	52.5	3.84
Concord	17	69	10	19	42.4	.....	31	78	8	36	54.1	.....
Goffstown Centre	17,30	68	13	20	35.6	2.24	29,31	74	2	40	55.2	10.33
Averages	.....	.....	.....	.....	37.3	2.59	.....	.....	.....	.....	53.9	7.03
VERMONT.												
Lunenburg	16	68	10	4	34.3	1.30	28	77	9	32	62.8	4.50
North Craftsbury	16	67	9	14	36.9	2.17	28	78	1	30	51.5	4.52
Randolph	22	63	10	4	35.1	1.92	.....	.....	.....	.....	.....	.....
Woodstock	1,30	63	10	8	36.8	.....	28	75	1,8	34	52.4	.....
St. Albans	15,30	67	6	11	37.3	.....	.....	.....	.....	.....	.....	.....
Middlebury	16	65	5	13	38.3	1.77	29	75	1	31	54.9	4.54
Charlotte	.....	.....	.....	.....	.....	.....	29	88	1	31	56.9	6.50
Averages	.....	.....	.....	.....	36.4	1.79	.....	.....	.....	.....	55.7	5.01
MASSACHUSETTS.												
Kingston	22	72	6	23	43.1	5.80	28	75	1	35	53.3	9.25
Topsfield	22	68	5	21	41.3	5.83	28,31	72	8	34	50.7	8.72
Lawrence	22	65	5,10	23	41.5	5.08	.....	.....	.....	.....	.....	.....
Georgetown	.....	.....	.....	.....	.....	.....	26	78	8	36	50.6	9.20
Newbury	17	68	5	22	41.4	.....	31	79	8	32	51.4	.....

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
Mass.—Continued.		°		°	°	*In.*		°		°	°	*In.*
Milton	22, 30	68	13	20	39.8	4.42	31	76		34	50.7	8.31
Cambridge	1	74	9	27	45.2	.....	31	88	8	35	52.2	.....
North Billerica	23	69	13	22	42.9	.....	16, 28, 31	78	8	32	54.3	.....
West Newton	23	76	6, 13	22	40.5	3.23	31	82	8	37	54.6	11.62
New Bedford	22	65	5, 9	25	41.8	5.71	31	76	1	38	52.8	9.44
Worcester	23	67	9, 13	21	41.2	5.69	28	75	8	34	54.0	8.84
Mendon	23	69	{5, 6, 9} {10, 11}	21	40.4	.....	17, 31	71	8	32	50.2	6.70
Lunenburg	17	69	5, 9	19	41.0	4.90	27	78	8	34	53.9	11.05
Amherst	1	68	5, 9, 10	23	42.0	4.27	27	75	8	36	55.1	7.86
Richmond	.....	.....	.....	.....	.....	.....	27	77	1	33	56.5	6.04
Williams College	30	70	9	18	38.1	2.60	16	88	8	34	54.4	0.63
Averages	.....	.....	.....	.....	41.4	4.75	.....	.....	.....	.....	52.9	8.05
Rhode Island.												
Newport	28	61	5, 9, 13	26	41.5	6.87	27, 31	71	8	37	52.2	8.88
Connecticut.												
Pomfret	23	66	5, 9, 13	20	39.2	4.72	27	71	8	33	50.9	7.71
Groton	22	63	9	18	40.6	6.99	.....	.....	.....	.....	.....	.....
Columbia	1	72	9	23	42.8	.....	27	78	8	36	53.9	.....
Middletown	1	71	9	22	42.5	4.48	27	77	8	35	55.3	7.63
Colebrook	23	68	5	15	39.9	.....	27	78	8	36	54.2	.....
Waterbury	23	68	10	23	42.5	4.99	27	72	8	36	54.8	9.35
Averages	.....	.....	.....	.....	41.2	5.29	.....	.....	.....	.....	53.8	8.26
New York.												
Moriches	1	70	6, 9, 13, 14	28	46.0	9.34	31	76	4	42	55.4	8.91
South Hartford	22	72	5, 6	21	42.2	2.95	17	81	1	35	58.1	6.20
Troy	17	72	10	21	42.9	3.77	27	76	1	38	57.6	6.33
Germantown	1, 17	72	5, 9, 13, 14	24	43.2	5.69	.....	.....	.....	.....	.....	.....
Garrison's	23, 30	72	5, 9	25	45.0	5.47	27	75	8	41	57.0	8.08
Throg's Neck	22	74	9, 13	25	44.5	.....	14, 31	74	8	42	55.6	.....
White Plains	23	70	9	24	45.8	.....	27	72	8	38	55.5	.....
Deaf and Dumb Ins.	23, 27	67	6, 9, 13	25	43.4	6.42	27	69	8	41	54.7	7.19
Columbia College	23	71	5, 13	28	45.9	2.65	31	69	8	41	54.9	5.84
Flatbush	27	69	13	24	43.3	1.55	25	72	8	40	54.2	5.08
Newburgh	27, 30	74	9	26	46.3	4.15	27	80	8	42	57.6	6.82
Minaville	17, 30	67	10, 13	17	50.3	2.71	27, 30	74	8	34	54.3	7.40
Gouverneur	15	72	9	12	38.3	1.65	27	83	1	32	55.3	4.23
North Hammond	15	80	5	12	40.4	0.99	27	88	1	32	57.0	5.37
Houseville	15	63	5	10	35.6	2.74	27	78	1	30	54.1	4.61
South Trenton	1	62	5, 13	12	36.5	3.04	29	80	1	30	50.2	7.74
Cazenovia	30	66	5	14	38.8	3.25	27	82	1	32	54.8	5.48
Oneida	15	70	9	12	41.1	3.99	27	82	13	35	57.0	10.05
Depauville	15	75	5	14	38.8	3.25	27	82	1	32	54.8	5.48
Theresa	15	73	5	12	.....	2.43	.....	.....	.....	.....	.....	.....
Oswego	15	75	5	17	39.0	1.53	27, 29	77	1	36	51.2	3.35
Palermo	15	73	9	15	37.3	1.50	27	83	1	34	54.0	2.60
Nichols	27	73	13	18	4179	.....	27	82	1, 10	37	55.3	.....
Newark Valley	27	69	13	8	37.9	.....	27	80	11	34	52.6	.....

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEW YORK—Con'd.		°		°	°	*In.*		°		°	°	*In.*
Geneva	15	73	5	18	40.3	2.38	27	81	1	35	53.8	3.74
Rochester	15	75	5	21	41.2	1.86	27	83	1, 7, 18	40	54.8	6.36
Do	15	74	8	20	41.3	1.81	27	83	1	36	54.6	6.36
Little Genesee	28	74	9	9	38.3	1.75	26	80	11	25	53.1	3.65
Suspension Bridge	27	68	5, 9, 12	22	41.6	.....	27	80	1	38	55.7	.....
Buffalo	15	79	5, 9	19	40.9	1.86	26	81	8	37	54.1	4.35
Sloansville	.....	.....	.....	.....	.....	.....	27	72	8	38	54.2	8.74
Averages	.....	.....	.....	.....	41.5	3.14	.....	.....	.....	.....	54.4	5.99
NEW JERSEY.												
Paterson	23	72	6	22	44.7	5.35	26	76	8	42	57.1	9.39
Newark	23	73	13	21	45.1	5.26	31	71	8	38	55.3	6.92
New Brunswick	23	72	13	23	44.6	4.62	27	71	2	41	55.3	7.70
Trenton	.....	.....	.....	.....	.....	.....	31	74	8	46	60.7	6.98
Moorestown	15	75	13	27	46.1	5.09	27	76	2	41	56.4	5.87
Elwood	15	71	6	19	46.6	.....	30	80	4	32	56.9	.....
Dover	23	73	5, 6, 9	25	44.4	2.35	27	73	8	40	55.1	8.54
Haddonfield	1	69	13	22	44.4	5.55	27, 30	75	8	42	56.4	7.45
Newfield	15	73	6	22	46.3	.....	30	83	7, 8	43	57.4	.....
Greenwich	23, 30	72	13	25	47.7	3.87	30	77	3, 7, 8	45	58.4	5.31
Vineland	30	80	13	24	47.1	5.19	30	90	8	44	59.2	6.69
Rio Grande	2	71	13, 14	28	46.9	.....	26	76	4	40	56.3	.....
Seaville	1	84	9	28	45.5	6.15	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	45.7	4.82	.....	.....	.....	.....	57.0	7.20
PENNSYLVANIA.												
Nyces	1	71	5, 13	18	41.0	4.30	30	75	8	35	53.2	8.90
Fallsington	1, 23	71	6	25	46.0	4.10	27	79	5, 8	43	57.3	6.40
Philadelphia	23	70	12	30	47.2	4.29	30	77	8	42	58.3	6.89
Horsham	23	73	5	26	48.9	3.94	30	73	8	41	57.9	7.81
Plymouth Meeting	23	73	13	23	45.7	.....	27, 30	74	8	43	57.0	.....
Byberry	28	71	13	10	38.5	.....	27	78	12	34	52.4	.....
Whitehall	23	72	14	20	43.6	.....	27	82	12	36	57.0	.....
Factoryville	27, 28	70	5, 9	18	40.2	3.82	27	80	8	37	54.5	5.85
Reading	23	78	13	25	47.1	.....	26	81	8	43	59.0	.....
Parkesville	23	74	5, 9, 12	28	45.4	4.20	30	79	1, 9	45	57.1	4.82
Ephrata	23	78	6, 13	24	47.1	2.16	30	78	4	45	63.4	3.67
Silver Spring	23	80	5, 13	26	47.0	.....	.....	.....	.....	.....	.....	.....
Mount Joy	23, 30	75	13	13	47.5	.....	30	76	9	42	59.0	.....
Harrisburg	23	73	13	25	45.8	5.02	27	77	8	45	59.2	4.40
Tioga	28	78	9	12	41.1	3.60	29, 30	80	9	30	51.1	5.76
Lewisburg	30	73	5	22	43.6	3.85	27	77	8	40	56.3	4.10
Ickesburg	23, 30	75	13	17	44.4	4.28	30	80	4	42	58.3	5.84
Grampian Hills	28	74	5, 9, 13	10	36.9	4.56	26	77	8, 9	30	52.5	5.91
Johnstown	29	68	13	15	40.2	7.55	29	70	9	28	53.5	12.18
Franklin	15	75	13	15	40.0	.....	26	79	10	35	56.6	.....
Connellsville	28	79	5	20	46.4	.....	29	82	8	38	58.8	.....
New Castle	15	77	13	11	44.5	.....	29	81	11	32	58.8	.....
Beaver	28, 30	75	5, 8, 12, 13	30	46.5	.....	29	81	7, 8	42	58.5	4.1

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
PENNSYLV'A—Con.		°		°	°	*In.*		°		°	°	*In.*
Canonsburg	15	73	13	20	44.2	2.54						
Fountain Dale	30	80	5	24	47.6	4.27	27	78	8	44	59.9	7.83
Averages					44.2	41.5					56.9	6.30
MARYLAND.												
Woodlawn	1	73	13	27	46.8	4.16	30	78	3, 8	44	58.3	5.02
Annapolis	30	71	6	27	50.0	3.74	27	75	8	47	59.4	8.14
St. Inigoes	28	72	5, 9	31	50.0	1.75						
Emmittsburg	30	82	5, 13	24	46.7		31	80	8	44	59.5	
Mt. St. Mary's Col.	30	77	13	22	46.4	4.16	27	74	8	45	57.4	7.60
Averages					47.9	3.45					58.9	6.92
VIRGINIA.												
Surry C. H	30	87	5	32	57.5		27, 29, 30	89	8	49	68.5	
Johnsontown	30	76	6	30	52.2		2	80	8	49	62.6	
Comorn	30	82	5, 9	32	55.2	0.59	26	78	3	48	61.9	4.17
Mt. Solon	30	82	6	28	53.8		1	82	12	46	62.9	5.22
Lynchburg	30	74	6	31	51.3							
Snowville	30	81	6	22	48.1	14.63	2, 27	84	10	39	59.5	12.30
Wytheville	2	83	6	28	49.8	3.31	1	81	10	44	59.3	3.80
Averages					52.7	6.17					62.4	6.37
WEST VIRGINIA.												
Romney	30	82	5	24	50.1		1, 6	80	9, 11	46	61.1	
Weston	4	84	20	39	62.3							
Cabell C. H	24	64	6	28	46.7	1.40	1, 29	72	21, 24	39	56.0	4.60
White Day							29	90	11	40	64.8	
Averages					53.0						60.6	
NORTH CAROLINA.												
Kenansville	30	84	14	37	59.4	9.96	3	94	4	60	73.0	3.98
Goldsboro'	30	87	6	38	59.6	5.25	2, 29	92	9	54	69.5	4.22
Raleigh	30	87	13, 14	36	53.5	3.80	29	94	9	50	58.1	3.20
Oxford	30	80	6	33	53.7	3.50	2	86	9	52	66.0	4.65
Albemarle	30	91	4, 8	32	58.8	6.69	2, 29	95	9, 10	42	65.8	4.31
Statesville	30	82	6, 14	30	51.7	7.56	{1, 27, 28, 29}	86	9, 10, 14	42	62.9	3.12
Asheville	30	78	6	31	53.2		27	82	9	42	62.3	
Averages					55.7	6.12					65.3	3.91
SOUTH CAROLINA.												
Aiken	30	87	14	39	57.0	9.34	1, 5, 27, 28	87	9	56	69.8	6.42
Gowdysville	30	83	13	35	58.5		31	89	14	50	68.8	
Averages					57.7						69.3	
GEORGIA.												
Atlanta	29	85	8	29	58.2	6.88	5	89	9	46	66.3	4.26
Macon	30	85	8	42	62.8	11.36	1	91	9	53	71.7	
Summerville							2	89	13, 14	58	73.3	5.83
Averages					60.5	9.12					70.4	5.04

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ALABAMA.		°		°	°	*In.*		°		°	°	*In.*
Opelika	30	87	8	39	63.4	5.75	28	93	13, 14	55	71.2	3.00
Carlowville	14, 30	86	8	42	66.2	10.46	28, 31	92	9	56	73.3	0.80
Moulton	30	80	6	41	58.6	7.37	27, 28	82	9	44	66.0	3.48
Greene Springs	13	85	8	36	65.9	7.27	28	89	9	51	68.7	4.40
Havana	13	84	8	37	64.8	8.33	28	88	9	50	68.8	3.89
Averages					63.7	7.83					69.6	3.11
FLORIDA.												
Jacksonville	20	92	8	50	72.0	2.83	6	97	9, 14, 19	67	78.3	2.85
Port Orange	12	88	8	48	71.3	.....	6	94	13, 14	68	78.7	.....
Lake City	26	85	8	43	68.5	.....	28	92	9	58	72.1	.....
Averages					70.6	.....					76.1	.....
TEXAS.												
Gilmer	29	85	3	47	66.3	.....	31	98	7	60	73.8	1.78
Houston	30	81	3	62	71.9	.....	26, 27, 31	83	13	66	74.1	.....
Columbia	23	91	4	50	71.4	5.96	29	94	13	57	76.6	2.31
Waco	30	88	1	34	67.8	5.40	29	93	13	56	76.8	3.70
Austin	15	89	26	50	68.2	3.63	3, 16, 31	90	11	60	75.2	2.33
Averages					69.1	4.99					75.3	2.53
LOUISIANA.												
Benton	13, 24, 29	84	8	47	65.4	.....	27	90	9	58	69.8	1.00
New Orleans	25	86	8	59	.....	.....	.....	.....	.....	.....	.....	.....
Do	15	82	4, 8	46	65.6	.....	.....	.....	.....	.....	.....	.....
Averages					65.5	.....	.....	.....	.....	.....	.....	.....
MISSISSIPPI.												
Marion	28, 29	88	8	32	67.3	13.66	.....	.....	.....	.....	.....	.....
Grenada	14	84	8	33	62.6	.....	.....	.....	.....	.....	.....	.....
Brookhaven	12, 30	85	4	45	66.6	.....	25, 26	89	8	54	74.1	.....
Natchez	13, 14	81	4	42	69.9	7.97	30, 31	85	8, 9, 13	56	73.8	3.98
Averages					66.6	10.81	.....	.....	.....	.....	73.9	.....
ARKANSAS.												
Helena	13, 30	89	7	39	62.0	.....	28	94	8	52	71.0	.....
TENNESSEE.												
Elizabethton	30	81	6	30	53.2	.....	3	86	9	36	61.8	.....
Tusculum College	24, 29	79	5	32	56.2	.....	.....	.....	.....	.....	.....	.....
Lookout Mountain	30	82	6, 7	35	60.4	.....	.....	.....	.....	.....	.....	.....
Austin	30	84	6	26	58.4	9.80	28	92	10, 18	50	67.0	2.85
Clarksville	29, 30	80	5	31	55.4	7.61	28	86	8, 14	51	65.3	3.21
Memphis	30	88	8	38	60.1	7.96	28	95	8	53	71.4	3.45
Averages					57.2	8.45					66.3	3.17
KENTUCKY.												
Chilesburg	29, 30	78	5	22	53.8	4.34	5	84	8	42	60.0	6.14
Lexington	29, 30	76	5	29	51.9	4.92	1, 28	89	8	43	62.0	5.90
Danville	29	84	5	28	56.6	4.79	1	88	13	52	66.7	4.50

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
KENTUCKY—Cont'd		°		°	°	*In.*		°		°	°	*In.*
Louisville	30	79	5	23	53.1	6.05	26,28	85	22	45	63.0	8.45
Clinton							28,31	87	22	56	68.0	2.78
Averages					53.8	5.02					63.2	5.55
OHIO.												
New Lisbon	27,29	68	6,13	20	43.8	2.84	26,28	85	11	36	57.3	4.53
Steubenville	28	76	5	23	48.0							
Milnersville	29,30	75	6	20	45.5	1.42						
Cleveland	29	77	12	20	42.5	2.97	26	82	7	41	54.5	4.64
Do	29	80	12	22	45.1		26	84	7	40	58.1	
Wooster	28	77	6	23	47.4		26	85	7	42	62.3	
Gallipolis	30	78	5,9,13	28	51.1	5.06						
Kelley's Island	29	66	5	22	42.2	1.83	26	78	7	43	55.9	2.86
Sandusky	29	74	5	18	43.8	4.13	26	78	1	44	56.4	6.11
Norwalk	29	76	5	16	43.7	1.69	4	84	7	40	55.9	3.62
Carson	28	78	5	12	46.6	1.67						
North Fairfield	28	78	5	18	44.6	1.84	26	81	7	39	57.9	3.77
Westerville	29	76	5	22	47.6	3.57	3,4	80	7	40	57.6	6.10
Marion	28,29	72	5	19	44.3	3.85	4	79	7,8	42	57.3	4.54
Hillsboro'	29	74	5	23	47.4	4.12	5,26	78	7,8	42	59.4	5.30
Toledo	29	71	5	13	42.5	3.38	26	80	8	40	58.0	5.31
Bowling Green	27	75	5	3	44.5	5.55	5	88	1,8	45	58.8	6.22
Kenton	30	70	6,7,9,13	30	43.8	2.44	26	81	14	38	57.3	9.00
Urbana University	30	76	5	22	46.7	3.35	26	83	8	42	60.2	6.19
Bethel	29,30	75	5	24	47.3	3.50	4	82	18	40	56.8	6.60
Cincinnati	29	74	5	25	49.1	2.72						
Do	30	85	9,13	33	53.7	3.30	1	86	19	50	66.0	6.01
College Hill	30	75	6	26	48.5	4.44	1,4,28	80	8	43	63.2	8.00
Averages					46.0	3.18					55.3	5.54
MICHIGAN.												
Monroe City	27	75	4,8,10	23	44.3	2.87	26	76	1,7,18	44	55.2	4.19
Alpena	28	48	5	15	33.7	1.32						
State Agric. College	28	72	5	17	42.7	1.83						
Litchfield	27	72	4	12	40.5	3.38	4	84	7	38	56.7	5.15
Grand Rapids	28	76	5	17	41.8		26	88	1	42	60.2	
Northport	27	70	5,8	16	37.5		25,26	82	1	35	52.1	1.00
Holland	28	70	8	21	41.7	2.58	25	79	1,7,13,16	44	55.4	3.05
Otsego	25,26	72	4	16	45.7		25	84	9	37	58.0	
Copper Falls	26	51	2	5	14.3	3.90	26	82	1	32	51.2	1.70
Ontonagon	20	62	9	4	33.2		25	88	9	32	48.0	
Averages					37.5	2.64					54.6	3.01
INDIANA.												
Richmond	29	71	5	23	45.8	4.62	28	78	7	43	58.9	7.18
Aurora	29	80	5	22	50.9	3.69						
Vevay	28,30	85	5	23	53.1	3.95	1	95	8,9,14	49	67.6	5.93
Muncie	22,27	74	4,5	25	46.9	5.25	28	85	7	41	61.0	8.75
Spiceland	22	72	4,5	25	47.1	5.70	25	83	7	44	60.7	7.90

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
INDIANA—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Columbia City	28	74	4	22	48.1	.....	.....	.....	.....	.....	.....	.....
Carthage	{25,26,28,31}	78	10	34	59.6	11.75	.....	.....	.....	.....	.....	.....
Indianapolis	22	72	5	25	46.9	4.94	5	82	7	44	60.2	8.26
State University	30	71	5	25	48.8	5.17	28	81	8	47	61.4	5.20
Rensselaer	22	72	4	22	44.2	6.90	5	83	6	42	59.0	13.9
Merom	30	72	5	25	49.6	2.00	28	84	8	47	64.1	4.44
New Harmony	30	77	5	32	53.6	5.52	5	86	8, 13, 14	52	66.6	3.55
Averages	.....	.....	.....	.....	49.5	5.49	.....	.....	.....	.....	62.0	7.13
ILLINOIS.												
Chicago	21	73	5	19	45.9	3.00	25	75	13	43	55.3	2.73
Near Chicago	26	70	4, 5	14	43.8	.....	4	86	13	36	55.6	.....
Ridge Farm	22	74	4	28	42.5	2.50	5	80	8	40	61.0	10.30
Marengo	27	69	5	9	41.4	6.06	4	79	10	34	56.2	4.21
Golconda	24	87	4, 5	26	58.0	4.20	30	94	9, 21	56	70.3	3.20
Aurora	27	67	5	14	42.2	4.56	25	79	7	43	56.2	3.38
Sandwich	22	72	4	18	43.2	2.45	25	82	1	43	58.6	2.90
Ottawa	22, 27	79	4	24	45.7	2.50	25	86	7	45	51.9	7.69
Winnebago	27	71	5	17	41.1	4.43	4	84	1	41	58.7	3.82
Rochelle	27	72	5	13	42.1	.....	5	84	8, 10	41	58.0	.....
Tiskilwa	22	74	5	22	45.0	.....	4	85	12	42	59.6	4.50
Magnolia	27	82	5, 10	26	47.3	4.50	24	88	19	42	60.6	7.80
Elmira	22	78	5	23	46.5	3.15	25	86	7	44	61.3	7.04
Peoria	22	79	5	22	47.6	3.18	25	82	8	47	62.1	7.85
Springfield	30	78	5	26	45.6	.....	{2, 27, 30, 31}	86	12, 13	40	61.1	.....
Dubois	30	77	5	21	47.6	8.20	30	83	8	40	61.4	4.75
Waterloo	29	82	5	26	49.0	.....	30	92	7	51	65.6	.....
Galesburg	22	75	9	25	44.6	5.54	25	81	7	46	60.5	6.74
Manchester	22	78	13	20	48.2	5.60	29	86	7	48	64.7	5.59
Mount Sterling	22	78	5, 9	26	49.3	.....	31	88	7, 8	46	66.0	.....
Andalusia	22	72	5	22	46.0	.....	4, 25	84	19	42	62.1	.....
Augusta	22	72	9	23	48.8	5.37	.....	.....	.....	.....	.....	.....
Belvidere	27	70	4	15	40.9	.....	25	81	19	31	56.2	.....
Averages	.....	.....	.....	.....	46.3	5.07	.....	.....	.....	.....	69.1	6.32
WISCONSIN.												
Manitowoc	27	72	4, 8	18	39.3	1.92	21	75	1	36	53.7	1.01
Plymouth	27	71	8	13	38.4	3.20	4, 24, 25	84	1	36	56.0	1.20
Milwaukee	21	70	5	16	39.9	2.97	22	56	1	35	51.5	2.05
Appleton	27	64	8	13	39.1	.....	23	79	1	36	58.5	.....
Geneva	27	70	5	6	41.0	.....	25	82	1	40	57.3	.....
Waupacca	27	72	8	10	40.7	.....	5, 24, 25	85	1	36	59.8	.....
Embarrass	27	72	5	12	37.4	3.00	24	86	1, 11	36	56.3	1.74
Rocky Run	27	73	8	17	41.0	1.50	4, 25	83	1	38	58.4	1.66
Edgerton	21, 27	75	5	9	42.2	4.05	26	90	8	38	59.1	3.34
Baraboo	{25,26,27,28}	70	8	12	43.0	.....	24	86	8, 12	31	57.5	5.09
New Lisbon	28	72	8	12	41.1	.....	.....	.....	.....	.....	.....	.....
Bayfield	.....	.....	.....	.....	.....	.....	23	80	7	32	48.2	.....
Averages	.....	.....	.....	.....	40.1	2.77	.....	.....	.....	.....	56.1	2.28

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MINNESOTA.		°		°	°	*In.*		°		°	°	*In.*
Beaver Bay	20	55	10	3	30.8	2.05						
St. Paul	27	72	8	9	39.1	0.76	24	87	28	39	60.4	3.96
Minneapolis	27	72	8	8	38.6	2.01	24	91	28	38	59.6	4.37
Sibley	27	72	5,8	10	37.3	0.90	24	85	12	43	60.0	3.80
New Ulm	27	74	8	12	40.5	2.11	24	84	8,28	46	61.7	3.68
Danville	27	72	8	10	39.2							
Averages					37.7	1.56					60.2	3.95
IOWA.												
Clinton	22, 26, 30	70	4, 5	24	43.6	6.75	22, 24	82	7, 8	40	60.2	10.00
Dubuque	27	70	9	18	42.9	1.99	25	82	7, 8	46	60.7	3.53
Monticello	30	73	5, 8	22	44.5	2.78	26	90	13, 19	47	61.2	4.59
Burlington	21	72	5	25	46.9		25	84	7	46	63.2	
Fort Madison	22	75	5	18	45.5	7.57	31	86	19	41	62.0	9.84
Guttenberg	27	74	5, 8	16	40.3		25	89	19	42	59.1	
Ceres	21	70	8	18	42.5		4	86	6	40	62.9	
Mount Vernon	22	76	5	20	42.9		25	85	19	40	62.3	
Iowa City	21	78	5	18	44.5	4.70	21	82	13	46	61.6	7.20
Independence	27	75	5	17	42.4	2.10	23	89	7	45	61.5	3.60
Near Independence	27	77	5	16	41.2	2.90	24	88	12	43	56.8	5.70
Waterloo	27, 30	72	5	15	40.8		24, 25	86	29	46	67.0	
Iowa Falls	30	70	5	20	41.9	3.97	24, 25	84	8	36	64.0	3.28
Algona	27	70	3	16	40.8		24	86	7	44	60.6	
Do	27	66	3	13	40.7		23	82	7, 29	44	60.9	
Fort Dodge	30	71	3	17	41.6	1.86	24, 25	88	7	44	61.3	5.02
Boonsboro'	11	80	5	16			27	87	12	44	62.5	6.58
Rolfe	30	76	5	14	44.9	1.58	23	89	6, 7	42	62.6	4.47
Fontanelle	22	78	5	17	43.1	6.13	25	87	7, 11	47	64.7	6.36
Logan	11	76	5	12	43.4	2.60	5	84	12	40	60.9	4.00
Woodbine	11	78	3	18	42.7		25	88	11	44	62.7	
Bowen's Prairie							23	88	30	44	61.7	5.09
Averages					42.8	3.74					61.8	5.60
MISSOURI.												
St. Louis University	22	77	5	30	51.5	5.89	5	87	7, 13	51	66.9	4.00
Allenton	30	85	5	28	51.4	6.05	1, 25	90	19, 22	40	65.1	5.71
Hematite	29	80	5	28	52.8	7.40	1, 2	88	22	42	66.1	7.70
Canton	22	80	5	25	49.4		3, 31	87	7	47	64.7	6.05
Do	22	80	5	24	46.5	7.47						
Rolla	29	82	5	25	51.0	7.34	1	87	8	39	64.1	3.39
Jefferson City	30	79	5	29	50.0		3	86	7	50	65.0	
Hermitage	30	79	3	30	51.8	4.93	2	92	13	45	67.0	1.29
Harrisonville	{11, 22} {23, 30}	76	5	26	47.7	2.51	2	88	7	46	66.3	4.23
Oregon	22	83	2	22	47.7	3.43	2	88	12	50	66.7	3.50
Averages					49.9	5.62					65.7	4.48
KANSAS.												
Leavenworth	11, 22	77	5	23	48.0	2.36	2	94	22	42	64.6	4.35
Do	11, 21	83	5	22	47.7	3.44						

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
KANSAS—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Olathe	30	83	9	29	48.9	5.90	.....	.....	.....	.....	.....	.....
Baxter Springs	30	83	5	32	56.4	2.80	27	96	8	46	71.4	2.95
Atchison	21, 22	82	5	23	48.7	7.10	2	92	12	46	66.7	9.45
St. Univ. Lawrence	11	83	5	25	49.7	2.95	2	91	7	46	66.7	2.81
Holton	21, 23	83	2	26	48.2	.....	{1, 2, 4, 24, 31}	89	11	46	70.1	.....
State Agric. College	11	83	5	27	46.6	1.96	2	88	12	51	67.0	1.38
Council Grove	22	82	2	26	50.6	2.65	2, 5, 9	90	12	46	70.8	3.05
Averages	.....	.....	.....	.....	49.3	3.58	.....	.....	.....	.....	68.1	3.99
NEBRASKA.												
Elkhorn	30	73	3	20	44.2	.....	25	83	6	45	64.6	.....
De Soto	11	78	3	22	44.5	3.16	1	85	6	45	65.1	.....
Bellevue	21, 30	76	3	24	47.3	2.60	1, 3, 5	86	6	48	65.0	7.20
Glendale	22	89	3, 8	22	45.5	3.60	1	89	8, 11	45	65.0	8.20
Dakota	30	72	3	21	44.3	.....	31	90	11	45	64.6	.....
Omaha Agency	30	79	3	23	45.9	1.00	5	84	7	45	65.5	.....
Averages	.....	.....	.....	.....	46.9	2.57	.....	.....	.....	.....	64.9	7.70
UTAH TERRITORY.												
Gt. Salt Lake City	.....	.....	.....	.....	.....	.....	13	73	7	41	56.3	2.36
CALIFORNIA.												
San Francisco	24	72	15	48	52.7	2.35	.....	.....	.....	.....	.....	.....
Antioch	24	74	18	47	67.9	1.13	.....	.....	.....	.....	.....	.....
Murphy's	25	80	13	34	54.8	2.91	12	92	5	30	56.0	21.26
Averages	.....	.....	.....	.....	58.2	2.13	.....	.....	.....	.....	.....	.....
WASHINGTON TER.												
Port Townsend	1	65	11	40	52.2	0.65	.....	.....	.....	.....	.....	.....

NOTES OF THE CROPS, WEATHER, &c., APRIL, 1868.

Steuben, Maine.—A severe storm of snow, hail, and rain on the 7th and 8th.

West Waterville, Maine.—From 4th to 7th sleighing as good as in the winter. Spring farm-work began on 25th. Snow-fall in April 18 inches.

Gardiner, Maine.—*Four* winter months usually spoken of; but this year April must be added.

Lisbon, Maine.—Month cold, dry, blustering, but few places free from frost so that farmers could sow grain.

Standish, Maine.—More snow fell on the 7th than in any winter storm; sleighing for six days.

Norway, Maine.—Month remarkable for absence of rain; ground dry, and ponds and streams low.

Cornish, Maine.—Snow all day, 7th; frogs peeping, and snakes crawling, 16th; first swallows, 30th. Snow-fall in April 16 inches.

Stratford, N. H.—Coldest April on my records. Snow yet on mountains in all directions, and drifts in open fields.

Antrim, N. H.—April a cold month; spring very backward; 15 days of snow and rain, but quantity less than in April, 1867.

Goffstown Center, N. H.—Frogs peeped on the 3d; but the snow-storm on the 7th silenced them. Snow on the hills disappeared on the 23d. No thunder or lightning this April.

Lunenburg, Vt.—Very dry, mild weather; roads settled; and more maple sugar made this season than for many years.

Craftsbury, Vt.—An excellent sugar season; frost mostly out of ground, 25th; vegetation a fortnight earlier than last year.

Randolph, Vt.—Snow-storms on 4th, 5th, 7th, and 27th.

Kingston, Mass.—Great numbers of wild geese, 2d; frogs peep, 4th; snow fall of the season two feet more than 1866–'67, which was a snowy season.

Newbury, Mass.—Heard frogs on 1st; good sleighing on 11th; ground frozen hard on 24th and 27th.

Topsfield, Mass.—Sleighing, 8th and 12th; ice half an inch thick on 24th.

North Billerica, Mass.—Snow-storms, 4th, 5th, and 7th; the last severe and snow four to five inches deep; snow gone, 16th. No May-flowers visible on 30th.

New Bedford, Mass.—Oriole heard, 3d; house-swallows, 14th.

Mendon, Mass.—Three inches snow on 5th, seven on 7th; three on 25th; all gone on 26th.

Lunenburg, Mass.—Thunder-showers on 2d and 16th; coldest April since 1857.

Williamstown, Mass.—Hepatica, arbutus, poplar and alder in blossom on the 1st; frogs heard, 15th; elm and willow in blossom, 20th. April snow-fall 15 inches.

Newport, R. I.—Snow on the 7th ended in rain, with a very high tide and heavy sea.

Pomfret, Conn.—The coldest April of which we have record.

Columbia, Conn.—Snow on the 5th, 7th, 10th, and 25th; rain on 2d, 7th, 10th, 14th and 20th; ground frozen on 24th; a remarkable April for cold and snow; farm work a month behind time.

Moriches, N. Y.—Remarkable thunder-storm on 16th; rain in torrents part of the time. A young lady at Christian Hook was killed in her bed; the lightning passed through the shingled roof, entered her ear, passed through the neck and left a large hole under her arm opposite the entrance of the fluid. Her mother was also severely injured, and the dwelling much damaged. The month has been unusually cold.

South Hartford, N. Y.—April cold and backward; probably more snow

than in any April for 50 years; in some places nearly three feet fell, of which two feet fell on the 7th. Good sleighing on the 13th and frogs out on 14th.

Troy, N. Y.—On the 7th, 14.3 inches of snow fell, the heaviest in April since 1856; on 10th, 7.5 inches fell.

Garrison's, N. Y.—April wet and cold; not a furrow turned before the 25th.

Minaville, N. Y.—Severest April snow-storm remembered, on the 7th; 15 inches fell, and sleighs ran six days. Farmers commenced sowing grain on the 20th; frost and ice the 28th.

North Hammond, N. Y.—Month very dry and backward; the St. Lawrence lower than ever known.

Houseville N. Y.—Snow on the 2d, 4th, 5th, 7th, 18th and 27th; sleighing till the 14th.

South Trenton. N. Y.—Frogs heard the 15th; first thunder-storm the 30th.

Depauville, N. Y.—From the 2d to the 14th, weather cold, freezing most of the time; from the 7th to the 14th, sleighing; last half of the month warmer, but variable.

Palermo, N. Y.—Coldest April in 15 years; on the 7th and 8th snow fell eight inches deep with wintry fury.

Nichols, N. Y.—Snow-fall in December 18.25 inches; in January, 28 inches; in February. 17 inches; in March, 13 inches; in April, 14 inches (of which eight inches fell on the 7th;) in all, 90.25 inches.

Newark Valley, N. Y.—A very early spring; farmers have all their grain sowed.

Little Genesee, N. Y.—First week unpleasant, with snow squalls and cold; since, pleasant as usual; a very good sugar season.

Buffalo, N. Y.—Temperature 2° below the average of ten past Aprils; much fine weather for farm work, and from March 20 to the 20th inst., excellent sugar season and more made than usual.

Newark, N. J.—April closed with scarcely a blossom on fruit trees; the mean temperature being 4° lower than that of 24 Aprils preceding.

Moorestown, N. J.—Heavy thunder-shower throughout the 16th; the lightning struck the earth within 75 yards of a barn, making a hole two feet deep, branching off in various directions under ground, marking its course by occasional ruptures of the sod.

Elwood, N. J.—April cold and wet; snow on three days and rain on ten.

Dover, N. J.—Frogs heard on the 2d; freezing all day, 9th; hepatica and epigæa in bloom, 19th; wintry, 23d; vegetation struggling to hold its place, 30th.

Newfield, N. J.—A wet and cloudy month; very white frosts, 4th and 14th; chewink and swallow, 20th; whippoorwill, 27th; lark and kingbird, 28th.

Greenwich, N. J.—Month closes backward; few peach and no apple trees in bloom; farm work hindered by cold and wet.

Fallsington, Pa.—Snow-storms on the 5th, 10th, and 12th; the last very severe. Rain on ten days. The coldest April since 1857; farmers not done sowing oats, and no blooms except on a few cherry trees.

Philadelphia, Pa.—From November 13th, 1867, to April 12, 1868, snow fell 33 times on 35 days.

Dyberry, Pa.—Oats sowed and potatoes planted from the 27th to the 29th. April snow-fall, 25.8 inches; since November 6th, 1867, 114 inches.

Whitehall, Pa.—Farmers two weeks behind time; as much snow in April as in the three months preceding.

Harrisburg, Pa.—Snow on the 4th, 7th, 9th, 10th and 12th, and rain on ten days.

Tioga, Pa.—On the 1st, beautiful warm day with thunder-shower in the evening; from 4th to 15th more like winter than spring; unfavorable weather for farmers, and severe on sheep and lambs.

Fountain Dale, Pa.—Peach blossomed, 23d; cherry, 26th; pear, 30th; corn planting began, 25th; ground free from frost all the month.

Parkesville, Pa.—Slight rain, then snow, on the 4th; snow on 9th, 10th, and 12th; rain on ten days; hail on 23d.

Grampian Hills, Pa.—Except a few days, April has been wet and cold, ground mostly covered with snow, and vegetation backward.

Johnstown, Pa.—Peaches in bloom, cherries and plums nearly so; grass green but short; fall grain looks well.

Connellsville, Pa.—On the 12th, rain and snow at 10 a. m.; thunder at 11 a. m., rain till 3 p. m., then snow till 5.30 p. m. Heard whippoorwill on 25th.

New Castle, Pa.—From 2d to 15th unusually cold; on 10th, six inches of snow fell and sleighs were going. The average temperature of this April was 5° lower than that of ten Aprils past.

Beaver, Pa.—High wind with flurries of snow on 8th; ground frozen hard, 9th; heavy frost, 26th.

Canonsburg, Pa.—Snow on 3d, 4th, 7th, 9th, and 12th; martins, 14th; swallows, 20th; peach and cherry blossom on 30th.

Woodlawn, Md.—Blue martins appeared on the 8th; ground and puddles frozen, 9th; whippoorwills heard, 28th; cherries in full bloom, 30th.

Surry Court House, Va.—Martins appeared and cherries bloomed, 2d; White frost and ice, killing peaches and plums, 9th; whippoorwill heard, 12th; apple and pear in full bloom, 14th; lilac, 22d.

Johnsontown, Va.—Skim ice on 4th; half an inch thick, 6th; plums in bloom, 15th; cherries, 16th; apples, 23d; lilacs, 30th.

Mount Solon, Va.—Frost on 1st; mountains white with snow, 5th; ground frozen, 6th.

Snowville, Va.—Month wet and cold, farm work retarded.

Wytheville, Va.—Frozen rain and freezing on 14th, killing most peaches and cherries; barn swallows appeared on 17th.

Romney, West Va.—April very wet; vegetation backward, and farmers hindered in work.

Cabell Court House, West Va.—Hard frost on 5th, killing peaches, pears, and cherries.

Kenansville, N. C.—Dogwood in blossom, 2d; whippoorwill heard, 4th; chilly northeast storm, 13th and 14th; vegetation 10 days later than last year, but every indication of good field and fruit crops.

Albemarle, N. C.—A wet month, retarding farm work.

Statesville, N. C.—Peaches in full bloom on 6th; heavy white frosts, 1st, 6th, and 11th, and light frosts, 2d, 4th, and 5th; more than half the corn planted by 30th; summer heat on only three days this year, viz., March 16, 81°, April 29, 76°, May 30, 82°.

Aiken, S. C.—Thunder-storms and showers on 10th, 13th, 15th, 16th, and 20th; that on 16th with a hurricane swept 300 yards wide and two miles in length, from southwest to northeast, prostrating trees, stables, cabins, fences, &c. The trees fell toward northwest, or at right angles to the course of the tornado.

Atlanta, Ga.—On the 8th tender vegetables were frozen on low lands. On 28th grapes in bloom and strawberries ripe.

Carlowville, Ala.—The seventeen-year locusts appearing in great numbers.

Moulton, Ala.—Month wet and warm, and planting much delayed.

Havana, Ala.—Frost, 4th and 8th; whippoorwill heard, 8th; apple in leaf and dogwood in bloom, 9th.

Jacksonville, Fla.—Compared with the average of several Aprils, this is nearly 2° above mean temperature; 6° above mean maximum temperature; nearly 3° above mean minimum temperature, and nearly 8° above mean range of thermometer.

Waco, Texas.—Grasshoppers have destroyed some fields of wheat, and farmers are ploughing them up for corn.

Gilmer, Texas.—Grasshoppers destroying garden vegetables and cotton plants, but not the young corn.

New Orleans, La.—Violent storms of wind and rain, with lightning and thunder, on 6th and 14th; considerable damage done.

Marion, Miss.—Tornado on 15th at 11.45 p. m., with a constant blaze of lightning. It extended from Mobile, Alabama, to Columbus, Mississippi, 225 miles, varying from a quarter to two miles wide, in some places upturning trees and houses, in others touching lightly.

Brookhaven, Miss.—White frost, 7th; very high wind, doing considerable damage, 14th and 15th.

Elizabethton, Tenn.—Severe frost on 6th, doing great damage to the peach in bloom; barn swallow, 5th.

Austin, Tenn.—Light frosts on 1st, 2d, 3d, 4th, 17th, and 18th; heavy frosts 5th and 6th; and very white frost and ground frozen on 7th, injuring fruits.

Clarksville, Tenn.—Light skim ice on 5th; white frost and ice, 6th; heavy white frost, 8th.

Memphis, Tenn.—White frost on 8th, damaging vegetables and fruits. Month had 15 rainy days; fire-flies and mosquitoes now numerous.

Chilesburg, Ky.—Light frost, 1st; heavy frost and thin ice, 3d and 4th; snow 4th, all gone next day; ground frozen, 5th; heavy white frost and ice an inch thick, 6th; purple martins, 16th. The fruit in bloom was generally killed on 5th and 6th.

New Lisbon, Ohio.—Hard frost and ground frozen 3d; snow storm 4th; ground frozen 8th; martins 16th; frost 26th, 27th, and 28th.

Kelley's Island, Ohio.—Snow on 4th, 7th and 12th; crocus in blossom on 21st, 11 days later than last year, which was more backward than nine years preceding.

Sandusky, Ohio—Saw garter snake on 3d. Snow 4th, 8th, 11th; heavy white frost 26th. Apricot in blossom 27th; swallows 28th.

Carson, Ohio.—Thermometer 8° at 6 a. m. on 5th. Barn swallows 26th.

North Fairfield, Ohio.—A very cold April, with 12 inches of snow; but the best run of maple sap I ever saw, from 6th to 19th.

Hillsboro', Ohio.—Snow 7th and 9th. Early cherries in blossom on 15th; peaches, 19th; late cherries, 28th; apple trees, 30th.

Bowling Green, Ohio.—Snow-storms on 4th, 9th, and 12th. The last snow laid till 15th. On 5th thermometer only 3° at sunrise.

Kenton, Ohio.—The coldest April in many years; the snow-storm on 12th as severe as any in the past winter.

Urbana, Ohio.—On 12th had lightning, thunder, rain, hail, snow, and high wind; snow also on 9th; each laid only one day.

Bethel, Ohio.—White frosts and hard freezing on 3d, 5th, 8th, and 13th.

Litchfield, Mich.—Snow-storm on 4th, severest of the season; on 15th, farmers hauled logs on sleds; bank swallow 20th; whippoorwill 29th; season backward, but wheat looks well.

Northport, Mich.—Month much more stormy and cloudy than March, three or four times as much snow fell, and yet the season appears more forward than usual.

Aurora, Ind.—Martins on 1st, but disappeared on 2d. Ice formed on 4th, 5th, 6th, 8th, and 13th. Martins returned 14th; chimney swallows 15th, when peaches blossomed. The 17-year locusts are coming up.

Vevay, Ind.—Heavy white frost on 2d, 3d, 4th; early peaches in bloom suffered by freezing on 5th; snow-storm on 9th, trees cased in ice, and limbs broken down, and peaches in blossom destroyed; but late peaches promise well. Wheat looks bad.

Muncie, Ind.—Several frosts in April, and what is unusual, snow; fruits uninjured.

Spiceland, Ind.—On the 6th 1.5 inches of snow; on the 10th 3.5 inches; on 13th ground frozen hard; peach in bloom 29th; woods show green 30th.

Merom, Ind.—Half-opened peach blossoms enclosed in ice on 9th; hard frost 13th; peach in full blossom 15th, and appears but little injured.

Indianapolis, Ind.—On 9th and 10th snow for 20 hours; melted rapidly, but laid three inches deep.

Marengo, Ill.—We had April in March, and March in April.

Golconda, Ill.—Month pleasant, and crops looking well; fruit but little hurt by the hard frosts early in the month, verifying the saying, "frosts during the light of the moon do little injury."

Aurora, Ill.—Wheat fine; ground in good order for corn; fruit prospects good.

Ottawa, Ill.—Snow flurries 3d and 4th; ice 4th and 5th; hard frost 9th; snow an inch deep 12th; rain on seven days.

Magnolia, Ill.—Ice half an inch thick 5th and 18th; very cold and dry 9th; snow 12th, and drifts three to four feet deep on 13th; house martins 14th; green heron ("thunder pump") heard on 30th.

Dubois, Ill.—Peach blossoms opening 5th; severe frost, killing peaches, 8th; martins 15th; peaches in full bloom 17th; pear 18th; apple and cherry 27th.

Waterloo, Ill.—On 9th fruit blossoms covered with ice, probably all killed.

Augusta, Ill.—Thick ice on 2d; severe snow-storm 5th; very wet and cold 9th to 15th; peach in bloom 21st; wild plum 27th; very wet 24th to 30th.

Waupacca, Wis.—Heavy snow-storm on 22d, 16 inches deep in some places, and laid nearly a week.

Embarrass, Wis.—Hard frost on 5th and 7th; very hard on 8th, 9th, 12th, 13th, and 18th.

Rocky Run, Wis.—Snow on 3d, 4th, 16th, 22d, 23d; wells and ponds lower than at this season since 1850.

Edgerton, Wis.—Frost out of ground 10th. It was frozen five feet deep last winter.

Minneapolis, Minn.—Blue bird appeared on 12th; anemone and blood root blossomed 25th. The coldest April since 1857.

Sibley, Minn.—Last April I sowed grain on 30th; this April I finished on 30th—two sowings in one year.

Clinton, Iowa.—Month backward; much rain and east wind.

Monticello, Iowa.—Frost out of ground, 12th; last frost, 18th; corn planting commenced 30th.

Fort Madison, Iowa.—Gale nearly all day, 12th; rain frozen on trees, &c., 13th; cherries blossomed 26th; apple and peach, 29th.

Guttenberg, Iowa.—The fine weather of March was followed by harsh April.

Independence, Iowa.—Snow on 3d, 4th, 12th, 16th, 17th, 24th, 25th; hard freezing, 2d, 5th, 7th, 8th, 17th, 18th, 23d; rain, 11th, 13th, 14th, 15th, 16th, 19th, 22d, 24th, 28th, 29th; hail, 22d, 24th; wild pigeons appeared 21st; martins 27th; currants leaved 28th; grass quite green 29th.

Algona, Iowa.—April did not fulfil the pleasant promise of March; the first half was 2° below the mean of March; after the snow-storm of the 24th April was warm. Prairie grass is now fit for grazing.

Iowa Falls, Iowa,—First eight days very cold; grain all sown; some up and looking well; one-half more breadth sown in this county than last year.

Fontanelle, Iowa.—Freezing and ice till 12th; sleet and rain till 16th; freezing, 17th, 18th; rain and fog, 19th and 20th; young grasshoppers numerous, 21st.

Logan, Iowa.—Month mild and pleasant; vegetation and grasshoppers developing rapidly, the latter having consumed considerable young wheat.

Whitesboro', Iowa.—Month cold and backward; grasshoppers still hatching out, though many have been destroyed by the cold rains.

Jefferson City, Mo.—Wheat and oats fair; barley winter-killed; corn planting going on; grafted peaches nearly all killed on 8th and 9th, but natural fruit along the rivers escaped.

Harrisonville, Mo.—Ice formed 3d, 4th, 5th, 7th, and on 7th many peaches were killed.

Oregon, Mo.—Ice formed on 2d, 3d, 5th, 7th, 9th, 10th, 13th, and on 5th spring wheat was badly injured; violets bloomed on 15th.

Leavenworth, Kansas.—Hard freeze on 2d, 5th, 10th, and apricots, many peaches, and some cherries were killed.

Baxter Springs, Kansas.—Season medium, but rather dry; crops all doing well; the Boughton wheat from Agricultural Department superior to all others.

Lawrence, Kansas.—The heavy frosts of 2d, 5th, 7th, and 10th did not greatly injure fruit buds.

Holton, Kansas.—Never a better prospect for grain and fruits; never greater breadth sown.

Council Grove, Kansas.—Ice and frost on 2d, 5th, 7th, 8th, 9th, 10th, 17th, 18th, 20th; rain on 11th, 23d, 24th, 25th, 26th, 27th, yet peaches and other fruits are all in splendid condition.

Elkhorn City, Nebraska.—Month wet, somewhat cold, and quite windy; the rains have killed off successive hatchings of grasshoppers, but others come, and damage to growing wheat is reported in some places. Swallows appeared 20th; robins 21st; plums in bloom 30th.

Dakota, Nebraska.—Season three or four weeks earlier than in 1867, and wheat looks well, but grasshoppers are damaging it.

Glendale, Nebraska.—Much wheat entirely killed by hard freezing early in the month. Wild strawberries and blue violets bloomed 27th to 29th. Grasshoppers are eating every green thing. No hopes for vegetables and grain. A neighbor put some newly hatched grasshoppers into water, and it froze solid over night; yet next morning, when thawed out, they hopped away as lively as ever.

[NOTE BY A. B. G.—What says our observer at Elkhorn City to this statement by Dr. Child? May there not be a *certain stage* of development of the eggs and of the hatched insect at which they can be drowned or frozen to death, while at other stages they defy death by water or frost? A few careful experiments, at different stages of growth, by our numerous correspondents, if reported to this department, *might* enable us to answer the oft and anxiously repeated question, *what can we do to destroy them?*]

NOTES OF THE CROPS, WEATHER, &c.—APRIL, 1868.

Steuben, Me.—White frosts, 2d and 11th; snow, 2d and 8th; month remarkable for rains.

West Waterville, Me.—Six inches snow on 8th; plum and cherry blossom, 26th; double the usual average of rain in May, and only one entirely clear day.

Gardiner, Me.—Remarkably cold, wet month, more than 2° colder than the average of 32 years; more moisture than average of same time, except May, 1850; six inches of snow fell on the 8th.

Lisbon, Me.—Bobolink on 18th; planting seriously delayed by the wet.

Standish, Me.—Farmers sowing wheat on 2d; frost 13th; chimney swallows, 26th; strawberries bloom 28th.

Norway, Me.—Month very wet, farming suspended on low lands.

Cornish, Me.—From 13th to 26th, the "May rain storm:" more rain fell than I have ever known in the same time and season.

Stratford, N. H.—Snow on 7th, 8th and 9th; barn swallows on 12th; dandelion in bloom, 20th; wild red cherry on 31st.

Antrim, N. H.—Apples in bloom, 31st; great want of rain; farmers behind in work.

Goffstown Centre, N. H.—Remarkably wet month; few farmers done sowing wheat, and very little corn planted.

Lunenburg, Vt.—Month mild and wet, no frost, vegetation forward and promising.

Craftsbury, Vt.—First swallows, 4th; first thunder, 14th; bobolink, 15th; May 5° warmer than in 1867.

Charlotte, Vt.—A dash of hail, 8th; white frost, 11th; cherry and plum in bloom, 22d; apple and peach, 31st.

Kingston, Mass.—Cloudy, rainy, foggy month; 15 rainy days, only 5 clear mornings.

Topsfield, Mass.—May remarkable for many cold stormy days; grass promises well, but little planting done.

Milton, Mass.—Snow on the 8th; 23 entire cloudy days, and wind N. E. 24 days in the month.

Mendon, Mass.—Month very backward, ground wet and rivers high.

Lunenburg, Mass.—Mean temperature of month less than for 30 years; rain on 22 days.

Worcester, Mass.—Snow on 8th; cherries blossom 12th; lilac, 29th.

Williamstown, Mass.—Snow of 8th lay on the hills till 14th; plums and pears blossomed on 21st, and apples on the 27th.

Newport, R. I.—The rainiest month I have ever recorded; farmers much discouraged.

Pomfret, Conn.—A cold wet month: temperature 4° below the average of many years.

Columbia, Conn.—Water froze on 9th; hardly a pleasant day in the whole month.

Waterbury, Conn.—Snow on 7th, frost on 9th; humming bird seen 10th; and Baltimore oriole on 16th; cherry and quince bloomed 15th; pear, 20th; apple, 26th; lilac, 27th.

Moriches, N. Y.—A remarkable May, and the latest, cloudiest spring ever remembered here; vegetation later than ever known.

South Hartford, N. Y.—Swallow on 10th; bobolink, 11th; apple full blooming, 25th; all vegetation late.

Troy, N. Y.—Snow on 8th. May had 14 days altogether cloudy, not one wholly clear, and 18 rainy days. More rain fell than in any May since 1833, and the mean temperature was nearly a degree below any May in same period.

Garrison's, N. Y.—Month unusually wet, farmers have just begun to plant corn.

North Hammond, N. Y.—Cold and frosty, 1st, 3d. 7th; spits of snow, 8th; bobolinks, 14th; plums bloom, 17th; apple and cherry, 27th; crops flourishing.

Depauville, N. Y.—Finished sowing grain on 1st, earlier than ever. First half of May cool and dry; since 15th copious rains; grass, grain and fruits promising.

Nichols, N. Y.—Apple blossomed 22d to 29th; corn planting 26th to 31st, many not yet done.

Newark Valley, N. Y.—May very wet, but farmers mostly done sowing and planting, and crops and fruits promise well.

Little Genesee, N. Y.—Apple not fully in blossom and corn not all planted; wheat and grass promising.

Buffalo, N. Y.—Currants and lilacs in leaf, 17th; cherries and plums in blos-

som, 18th; strawberries and peaches, 19th; apple, 27th; prospect of crops and fruits cheering.

Newark, N. J.—Month cool, mean temperature nearly 3°. 5 less than average in 25 years; blossoming and leafing nearly two weeks later than usual.

Elwood, N. J.—May remarkably wet and cloudy, 22 days rainy, of which 14 were in succession; vegetation 20 days later than usual.

Dover, N. J.—Wilson's strawberry begins to blossom, 16th; pear and cherry, 16th; peach and lilac 23d; first warm day, 31st; no corn planted yet.

Greenwich, N. J.—May equably cool; frost and ice 9th; wheat heading and clover blossoming, 31st.

Fallsington, Pa.—Very wet May, but 2 wholly and 5 partly clear days, and east wind 25 days.

Horsham, Pa.—Very wet and backward May; few have planted corn.

Dyberry, Pa.—May wet, cool and backward; forests show green on 27th; fair promise in crops and fruits.

Whitehall, Pa.—Frost 11th and 12th; plum in blossom, 15th; peach, 18th; pear, 21st; apple, 25th; corn planted, 30th.

Factoryville, Pa.—Corn planted very late, prospect good for hay, oats and apples; cloudy and wet month, but no high winds.

Tioga, Pa.—Hard freeze and ice, 9th, 10th, 11th; from 12th to 25th rain every day; much corn must be planted in June.

Ickesburg, Pa.—Seventeen-year cicada heard on 1st; light frost, 9th, 11th, and 12th.

Fountain Dale, Pa.—Great rain 12th to 14th, (3.26 inches,) more than in any one fall in ten years.

Grampian Hills, Pa.—May closes with fine prospects for grass, wheat, and probably fruit; corn and oats are late.

Franklin, Pa.—Frost on 9th, 10th, 11th, 12th; apple full bloom, 22d; vegetation backward.

Connellsville, Pa.—Thunder showers on 2d, 6th, 7th, 14th, 27th, and 29th.

Woodlawn, Md.—Dogwood blossoming, 7th; apple, 8th; hoar frost 10th; lilac full bloom and rye heading, 18th; Boughton wheat heading, 26th; red Mediterranean, 29th.

White Day, W. Va.—Frosts on 10th, 20th and 21st. May backward; wheat crop more promising than for years; oats and grass good; fruit reported injured by frosts.

Surry C. H., Va.—Chuck-wills-widow or North Carolina whippoorwill heard on 9th; blackberry in blossom, 14th; strawberries ripe, 26th. May was cloudy and wet, with much lightning and thunder, but calm, mild and agreeable.

Comorn, Va.—May wet and cold, corn and oats late, the latter unpromising.

Johnsontown, Va.—First humming-bird, 1st; clover blossoming, 8th; slight frost, 9th; locust trees in blossom on 21st, three days earlier than last year.

Goldsboro', N. C.—Cool weather injurious to some crops; cut worms damaging the corn.

Oxford, N. C.—Seventeen-year locusts appeared, 23d; are very numerous, 31st.

Albemarle, N. C.—Wheat sown last September was harvested on the 30th in fine condition; wild grapes in full bloom, Catawbas as large as squirrel shot, and strawberries nearly over, on 31st.

Gowdysville, S. C.—Early wheat heading on 1st; locusts appeared on 10th, very numerous in some places. [Two correspondents in the south call them "thirteen-year" locusts: is that their term of disappearance there?]

Atlanta, Ga.—The seventeen-year locusts have appeared all over the country.

Moulton, Ala.—First half of May wet; from 7th to 16th cool; last half dry and sultry; the seventeen-year locusts quite numerous.

Opelika, Ala.—Ripe Chickasaw plums on 17th; ripe dewberries, 19th; ripe apples, 24th.

Talladega, Ala.—About 11 p. m. on 6th, a terrible tornado passed 3 miles north of this—a volume of electric flashes followed by a dark cloud, with a roaring noise, sweeping everything before it, and leaving vegetation as if scorched by fire, and horses, mules, cattle, poultry, birds, lying dead all along its path, and trees, buildings, &c., prostrate wherever it reached. Mr. Henry and household (5 persons) were killed; the son seemed to have every bone broken. In another family a daughter's jaw was broken by the concussion. Its track was about three-quarters of a mile wide, and it seemed to touch the earth only at intervals of hundreds of yards. Its course was to the northeast, distance not given.

Lake City, Fla.—Magnolia grandiflora bloomed on 1st; on 5th, four acres in Hamilton county sunk, so that tall trees in its centre were covered with water.

Austin, Texas.—Chuck-wills-widow heard on 2d; lightning and thunder on 2d, 6th, 10th, 16th, 17th, 18th, 19th, 20th, 25th, 29th.

Columbia, Texas.—Cotton-worm here, 4th, six weeks earlier than last year; corn tasselling, 18th. Mean temperature of spring months, 71°.68.

New Orleans, La.—May 1st to 8th, humid and warm; 8th to 18th cool, especially at night; mosquitoes, 19th; 20th to 21st generally warm and sultry.

Shrereport, La.—Thunder with hail, on 28th; some hail-stones weighed eight ounces each; heavy storm from northwest prostrated and broke off much corn, 30th.

Grenada, Miss.—No washing or baking rains in May; crops and fruits promising; cotton has a good stand.

Brookhaven, Miss.—Heavy dews and cold rains retard corn and cotton; sweet and common potatoes growing fast and have fine tubers; beech and oak full of nuts; birds preparing for second brood.

Memphis, Tenn.—Green peas, strawberries and new potatoes plenty by 11th ripe cherries, 19th; flies and mosquitoes numerous, 25th; ripe plums, 29th.

Lexington, Ky.—From 2d to 20th, rain almost daily; after 20th, pleasant and growing weather.

Salem, Ky.—Oats fair; other crops poor; few apples, cherries, strawberries and peaches; no pears.

Chilesburg, Ky.—Month rainy; much thunder, some hail; no apples, pears or peaches; small crop of cherries and strawberries; promise of later berries and grapes.

Lisbon, Ohio.—Frost on 8th, 9th, 10th, 11th, 12th, 18th and 19th; spring about 10 days too late.

Wooster, Ohio.—Rain on 13 days and frost on five mornings, but no damage to vegetation.

Norwalk, Ohio.—Last frost on 19th; apples in bloom, 20th, ten days later than usual; grass and wheat look well; apples and cherries promise fair, but grapes and peaches much injured during the winter.

Kenton, Ohio.—Nearly all rains this year from northeast; last year from southwest; ice formed on 20th.

Urbana, Ohio.—Mean temperature of May 5° below last May, and 1° below the average of May for 16 years; fine promise for fruits.

Sandusky, Ohio.—Cat-bird seen on 1st; chimney-swallow, 20th; plum and early cherry blossomed, 2d; pear and peach, 10th; apple, 19th to 21st.

Bowling Green, Ohio.—Light frosts on 10th, 11th, 19th and 20th; great amount of cloudy weather, but wheat, grass, oats and flax look well; peaches killed; apples show some fruit.

Cleveland, Ohio.—Cherries blossomed on 1st; peach, 3d; apple, 17th; lilacs, 18th.

Toledo, Ohio.—Early cherry and plum blossomed on 6th; apple in full, 22d; frosts on 8th, 9th, 10th, 19th, 20th and 21st.

Litchfield, Mich.—Wheat and grass good, all else backward; some have mowed off the top of their wheat to prevent lodging.

Holland, Mich.—Rain on 13 days and frost on six mornings, the last on 19th.

Otsego, Mich.—Grass, oats and wheat very good, except wheat on low grounds, which has fallen and is rotting.

Northport, Mich.—Month has been very dry; grass has suffered some, but vegetation is about ten days more forward than usual, with great promise of fruit.

Copper Falls, Mich.—May, up to 29th, remarkably warm and extremely dry.

Vevay, Ind.—On night of 26th and 27th, during a violent thunder-storm, the lightning struck a wooden rack for hitching horses, near the market-place. The rack was surrounded by high buildings, all without conductors, yet the buildings were uninjured and the rack was shattered. The thermometer stood at 74° throughout the storm; the barometer at 2 p. m., 29°.30; at 9 p. m., 29°.15; on 27th, at 7 a. m., 29°.17′. The sycamore trees are dying in great numbers, commencing at the lower limbs.

Spiceland, Ind.—Wet month, delaying corn-planting two to three weeks.

Carthage, Ind.—More rain this month than in any month in the year.

Rensselaer, Ind.—Heavy thunder-storm on 26th; the rain and hail fell in torrents, making two inches deep in eight minutes!

Indianapolis, Ind.—May a wet month; some corn not planted up to June 4.

Aurora, Ill.—Spring wheat looks well; corn mostly up and good; potato-bugs numerous and destructive; fruit promises an average crop.

Sandwich, Ill.—Heavy frost on 19th, injuring pears; May favorable to all forage crops.

Winnebago, Ill.—Morello cherry blossomed 5th to 9th; wild plum, 11th; apple, 17th; lilac, 21st.

Tiskilwa, Ill.—Wheat, oats and grass good; corn coming up well; apple promises hardly a medium crop.

Magnolia, Ill.—Bobolink on 1st; strawberry in blossom, 15th; frost, 8th and 19th; an uncommon number of heavy rains, with thunder and lightning.

Peoria, Ill.—Ten thunder-showers on 1st, 3d, 5th, 6th, 26th, 28th and 31st.

Dubois, Ill.—Seventeen-year locusts, 15th to 27th; millions in the woods, though it is only 13 years since their former appearance here.

Galesburg, Ill.—Terrible tornado at Shaugh's (12 miles northwest) on 4th; 16 houses and two churches destroyed, five persons killed and 30 wounded. A wet month, with much heavy thunder.

Mt. Sterling, Ill.—Thunder-showers on 1st, 2d, 3d, 4th, 5th, 6th and 27th; from 14th to 25th the sky almost cloudless, and much planting was done.

Andalusia, Ill.—First 10 days were very rainy; next 15 dry and hot; next five cool and wet; no corn planted until 15th; promise of much fruit.

Belvidere, Ill.—Indian summer weather on 10th. [Several correspondents in Illinois mention this as extending over several days.] Weather quite dry, 14th to 25th.

Manitowoc, Wis.—Fog, 2d, 4th, 15th, 29th; frost, 10th, 11th, 18th, 19th.

Geneva, Wis.—Corn-planting not finished until 20th; spring backward, but wheat looks well; potato bug appearing.

Embarrass, Wis.—Oriole, 2d; plum and pear in blossom, 10th; dogwood, 15th.

Baraboo, Wis.—Frost on 8th, 10th, 11th, 18th and 19th, cutting vegetation on low grounds; May was rather dry.

Rocky Run, Wis.—May very dry, and crops suffered; wheat thinned by it; more northeast wind than usual.

Minneapolis, Minn.—Wild plum blossomed, 11th; lilac, 16th; wild columbine, 17th.

Sibley, Minn.—Frost on 8th, 12th and 13th, doing no injury.

Clinton, Iowa.—First part of May rainy; much east wind during the month, but crops looking well, though late.

Monticello, Iowa.—First nine days rainy, and seven days not a cloud seen.

Fort Madison, Iowa.—Wettest May since 1851; farmers not done planting corn.

Guttenberg, Iowa.—Frost, 19th—first since April 26th; Indian summer from 20th to 25th; no rain from 9th to 26th.

Independence, Iowa.—Wild plum blossomed, 8th; cherry, 10th; apple, 12th; peach, 14th.

Waterloo, Iowa.—Up to 26th very dry, but grain never looked better at this season.

Algona, Iowa.—Crops fine; no grasshoppers, but potato bugs are operating in some places.

Boonsboro', Iowa.—Martins came, 10th; bobolinks, 12th; clear days, 17th to 24th.

Logan, Iowa.—A pleasant growing month, but grasshoppers are destroying wheat, and farmers are ploughing it under and planting corn.

Woodbine, Iowa.—Grasshoppers at work, new broods hatching out; the "new ground" or "sod" wheat suffers most; corn and sorghum not attacked.

Allenton, Mo.—Immense numbers of locusts coming up out of the ground.

Rolla, Mo.—First half of May remarkably wet; last half warm, and very little rain.

Jefferson City, Mo.—Wheat heading out finely, promises more than an average crop; oats good; corn doing well; apples not half an average; peaches few; grapes plenty; small fruits fine, but not an average.

Canton, Mo.—Woods full of 15-year locusts, for they were here in 1853.

Hematite, Mo.—About the 10th the "periodical" locusts made their appearance after an absence of 13 years. By the 25th they were in myriads, and began piercing twigs to lay their eggs. The month has been cold and rather unfavorable.

NOTE.—By the different reports we have 13, 15 and 17 year locusts; that is, if the main body appeared at these different intervals in the several places. Is such the fact?

Lawrence, Kansas—Green peas on table, 17th; winter wheat heading, 19th; strawberries ripe, 20th; new potatoes, 30th.

Dakota, Kansas.—Wild plums blossom, 2d; corn and wheat looking well, but grasshoppers are eating the latter.

Holton, Kansas.—Best season for farming ever known here; garden, field and orchard crops, all fine; more wheat by one-half, and more fruit than ever raised here; but immigrants plenty also.

Elkhorn City, Nebraska.—Month warm and wet; grasshoppers still abound, doing injury; no frost since April 25th.

De Soto, Nebraska.—Grasshoppers destroying all vegetables except peas and asparagus, damaging some wheat, and even injuring shrubbery, young trees and grape-vines.

Glendale, Nebraska.—Catbird on 1st; apple blossomed, 5th; wild columbine, 15th; locust tree, 25th. Locusts [query, grasshoppers or 17-year locusts?] doing much damage.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

JULY, 1868.

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MONTHLY REPORT.

WASHINGTON, D. C., *July* 29, 1868.

SIR: I herewith report, for publication, the following matter, collated mainly from the returns of July: Condition of the crops; several reports of fruit culture in the northwest; wheat-growing in the northwest; extracts from consular correspondence; export of wheat to England in 1868; the crops of Prussia; and meteorology.

Respectfully,

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON, *Commissioner.*

CONDITION OF THE CROPS IN JULY.

CORN.—The most remarkable fact in connection with the corn crop of the present year is the great increase of its acreage in the south, the difference in number of acres between the present and preceding year being more than two millions and a half. A slight decrease is apparent in the eastern seaboard States, resulting from the unpropitious character of the recent cold, wet, and backward spring, which sadly interfered with planting. A careful estimate of the acreage shows a decrease of 49,609 acres in eight States, and an increase of 3,108,215 acres in the remaining States, as follows:

DECREASE.

	Acres.		Acres.
Maine	3,300	Connecticut	9,511
New Hampshire	3,184	New York	12,888
Massachusetts	1,985	New Jersey	8,818
Rhode Island	1,719	Maryland	8,204

INCREASE.

	Acres.		Acres.
Vermont	1,679	Tennessee	127,215
Pennsylvania	57,106	West Virginia	13,131
Delaware	6,697	Kentucky	207,307
Virginia	70,775	Missouri	407,942
North Carolina	216,927	Nebraska	16,145
South Carolina	89,764	Kansas	63,411
Georgia	255,987	Iowa	236,683
Florida	48,728	Minnesota	25,500
Alabama	43,827	Wisconsin	32,361
Mississippi	313,109	Michigan	48,146
Louisiana	397,291	Ohio	178,397
Texas	132,229	Indiana	100,626
Arkansas	376,762	Illinois	366,692

These figures show an increase of over 3,000,000 of acres in corn, making about 36,000,000 in the United States, an advance of nine per cent. The percentage of Louisiana reaches 65, that of Arkansas 47, that of Kansas 30, Mis-

sissippi 25, Nebraska 25, Missouri 22, Texas 18, Minnesota 17, Iowa 15, Illinois and Ohio 8, Indiana 4.

The drought in the south has retarded somewhat the growth of corn, but its condition in that section is generally good. In the west the average is high, with the exception of Ohio and Indiana, where the weather has been somewhat unpropitious, and storms destructive. In the east, on the last of June, the growth was small, but the hot weather of July has brought a large portion of the crop into splendid condition.

WHEAT.—The condition of wheat, as shown in the July returns, is above the average for last year in all the States except Vermont, Connecticut, the Carolinas, Georgia, Florida, Alabama, Mississippi, Texas, and Nebraska. The season has been peculiarly favorable to the growth and ripening of this great bread crop in all except the southern States.

The favorable reports are so numerous, in the western States especially, that it is unnecessary to give them in detail. The general tenor of reports is that "winter wheat bids fair to be the largest crop we have had for many years;" "the yield will be immense;" "the prospect was never better for a large crop;" "the weather has been remarkably seasonable;" "the universal opinion is that the crop will be the largest ever grown in the country;" "crops all over the country were never in a more flourishing condition." Our Lafayette, Wisconsin, correspondent says he has never seen, in a residence of 40 years, a finer prospect for wheat, as well as all other crops, and that the same might be said of several adjoining counties. In Highland county, Ohio, the acreage of winter wheat is estimated at three times that of last year, and in Monroe county, Missouri, the acreage of wheat is thought to be three-fold that of 1867. In Kalamazoo county, Michigan, an unusual yield is reported, the best fields being estimated at 40 bushels per acre; and in Bourbon county, Kansas, it is claimed that many farmers will show a similar yield.

The following exceptions to this favorable showing are reported:

Queen Anne county, Md.—Our farmers are now in the midst of harvest. The crop of straw is heavy, but much fear is felt in regard to the grain. The heavy rains caused a large portion of the tallest wheat to fall about two weeks ago. It did not rise again, and experience has shown that in such cases the yield of grain is small. In addition, the present hot weather commenced last Saturday, just as wheat was beginning to ripen fairly, and the ripening was hurried up too rapidly. In this respect it greatly resembles the harvest of 1858, when the crop consisted principally of straw and chaff.

Grand Isle county, Vt.—The very cold winter and dry April killed winter wheat and clover badly.

Lebanon county, Pa.—Wheat is good in straw, but late; injured by midge at least one-third. About one-half an average crop.

Washington county, Ohio.—Winter wheat withstood the winter and looks very well, but much was killed. We shall have about two-thirds of a crop.

Henry county, Ky.—The wheat prospects have been materially injured, very recently, by the rust which has attacked it, and which, it is feared, will greatly injure its quality as well as yield. It proves to be almost universal throughout the county.

Clinton county, Ind.—The midge has injured some wheat in this county, but independent of this we have a heavy crop, at least three times as large as last year.

Lapeer county, Mich.—The growth of wheat is very great, but some is very badly lodged, and it is feared will not fill. We have had some heavy winds.

Kent county, Del.—Wheat is injured by scab, though more than the usual quantity of straw. It is now being harvested.

Dent county, Mo.—Rust is injuring the wheat crop; cannot tell yet to what extent.

Randolph county, Ill.—Ten days ago our wheat crop looked very far above an average, but within the last three days rust, &c., has injured it very much.

Stanley county, N. C.—On the first of June the prospect was very fine. All of a sudden, in less than 48 hours, the rust made its appearance on the blade, and then invaded the stem. The scab followed, the emaciated stems fell down, and by harvest not more than half a crop of light, shrivelled grain was the result. Wheat early sown and early maturing, such as the Boughton wheat, escaped the disaster, while all the late sorts proved a failure, even where early sown. The richer the land the smaller the yield.

Franklin county, N. C.—Wheat was injured by the rust, but is better than it was last year, and more was saved.

Spartanburg county, S. C.—Wheat is far inferior to last crop, but all saved in excellent condition. Last year the crop was unusually large, but much damaged by heavy and continued rains during and after harvest.

Chatooga county, Ga.—The wheat has been somewhat injured by rust. It is harvested but not threshed. The amount raised in this county last year, which was a poor crop, was about 75,000 bushels. This year, owing to increased acreage, there will be about the same amount.

Greene county, Tenn.—Wheat is cut, has very much smut, and will yield poorly from the effect of rust on blades.

Cole county, Mo.—Wheat shows rust in some places, in others the pollen was washed off by heavy rains, causing a failure to make grain. Still, compared with last year, we average 11.

Miller county, Mo.—Wheat badly rusted.

Prairie county, Ark.—Wheat was slightly attacked with rust before cutting, which was done in May and first week in June.

Dallas county, Texas.—The wheat crop is an entire failure this year, owing to three causes: 1. Grasshoppers. 2. Wet weather. 3. Rust.

In the Miami valley thousands of acres of wheat just ripening have been destroyed by floods, and other crops suffered from the same cause. Other sections of the State were visited by destructive rains at the same time, and much injury resulted to wheat, corn, and other crops. With a successful harvesting of the spring wheat it may safely be declared, in summing up the local reports, that a larger number of bushels of wheat, by many thousands, will be grown in the United States in 1868 than in any previous season.

Cotton.—Returns from the cotton districts indicate everywhere a reduction of the acreage in that crop with the exception of Texas, which shows an increase of 33 per cent. over last year, and Alabama, where there appears to be no material change in the figures. The falling off in Mississippi appears to be 18 per cent., 24 in Louisiana, 12 in Georgia, 13 in Arkansas, 18 in South Carolina, 20 in Tennessee, and 32 in North Carolina. The average reduction in acreage is about 10 per cent. With this diminished breadth there is cleaner and better culture and a more general use of fertilizers, so that the yield may be quite equal to last year, the season being equally favorable, with a like experience as to insects and other causes of injury. It is yet too early to predict the result, but the present status of the crop is fairly shown in this statement.

One county in Arkansas (Desha) reports less than a third of the acreage of last year, while the area in corn is three times as large. Such indications are hopeful. The correspondent, as might be expected, declares that the crops are all in splendid condition, and if not injured by a drought the finest yield for many years will be the result. A want of rain has been apparent in the Gulf States and a severe drought has afflicted western Tennessee, but few complaints of its effects upon cotton are made. So far the plant enjoys a very general exemption from casualties and injuries.

Arkansas county, Ark.—The cotton crop bids fair to be the best since 1860. The dry, hot weather is proving fine for the cotton; it is growing very fast, jointing short and very full of squares, (or bloom.) The first bloom this year was found on the 15th, but the average was about the 20th June, which is about six days later than the average; this makes the crop about 21 days earlier than last year. I have not seen a crop that will not make 500 pounds lint per acre if no mishap comes to it. About one-third as much planted as in 1865, but will make more than in 1865.

Pike county, Miss.—The acreage in cotton is smaller this year, but the season has been propitious. The early portion of the season was dry, thus enabling the planters to work their land and keep the crop clean of grass, so that the land became well pulverized. For the last three or four weeks the weather has been seasonable. The crop is the earliest we have had for years; blooms were seen as early as the 15th of June. At present everything looks very promising for the planter.

Rye, oats, and barley promise abundant crops; no serious drawbacks are reported, and few complaints of bad condition are received.

Potatoes, so exceptionably unproductive last year, are in unusually fine condition, and the average is increased in every State except Rhode Island—the natural result of extremely high prices of last year's crop.

Fruit is variable; apples and peaches less promising than usual. Vermont, New Jersey, Delaware, Maryland, Virginia, Arkansas, Missouri, Iowa, Illinois, Indiana, Kentucky, and West Virginia, make a worse record than other States as to apples. Peaches will be less abundant than apples; New Jersey, Maryland, and Delaware promising but half a crop, and Illinois and Michigan showing a considerable reduction. A fair promise of grapes is indicated.

Tobacco covers as large an area as usual in Virginia, Kentucky, and Connecticut; somewhat less in Indiana, Illinois, and Missouri. Its condition is good in Kentucky and Michigan; elsewhere a little below an average.

Sorghum is generally doing well in the west; not so well as usual in the middle belt of southern States.

Wool.—There is a decrease in the wool product, compared with the clip of 1867, of something like 7 per cent., or about 8,000,000 pounds. The decrease is 10 per cent. in Ohio, 6 in Michigan, about 5 in Illinois, 8 in Iowa, and 13 in New York and Vermont. Wisconsin, Missouri, Kansas, and Arkansas, show an increase, and New Jersey a slight increase, from the attention now bestowed upon mutton breeds.

Table showing the condition of the crops on the first day of July, 1868.

STATES.	CORN.		WHEAT.		RYE.		BARLEY.		OATS.	PASTURE.
	Total acreage compared with last year.	Average condition July 1, compared with last year.	Average condition of winter wheat July 1, compared with last year.	Average condition of spring wheat July 1, compared with last year.	Average condition of winter rye July 1, compared with last year.	Average condition of spring rye July 1, compared with last year.	Average condition of winter barley July 1, compared with last year.	Average condition of spring barley July 1, compared with last year.	Average condition July 1, compared with last year.	Average condition July 1, compared with last year.
Maine	9.3	9.6	10.6	9.8	10.1	10	9.4	9.3	9.5	10.5
New Hampshire	9.2	9.5	10.1	9.9	10.1	9.7	.....	10.1	10.2	11.2
Vermont	10.4	10.5	8.7	11.3	9.8	10.5	12.5	10.6	11.2	11.1
Massachusetts	9.7	9.2	10	10.6	10.8	9.8	9.6	10	9.5	11
Rhode Island	8.7	8.5	.....	.....	10	9.3	.....	8	8	11
Connecticut	8.6	8.3	9.6	9	9.6	9	10	9.3	9.6	13
New York	9.8	9.6	10.9	10.9	10.5	10.5	10.4	10.9	11.4	11.4
New Jersey	9.7	8.7	10.3	.....	9.8	.....	.....	.....	9	10.5
Pennsylvania	10.6	9.5	10.9	11	10.4	9.9	10	10.2	10.5	10.6
Delaware	10.3	9.3	10.6	10	10	.....	.....	.....	9.3	10
Maryland	9.8	9	11.7	.....	10.3	.....	.....	10	10	10.7
Virginia	10.8	9.5	10.7	.....	10.5	10.5	.....	.....	10.8	10.8
North Carolina	11.4	11.4	9.1	.....	10	10.3	9.6	.....	10.3	9.9
South Carolina	11.1	9.7	8.1	.....	9.2	8.7	10	9.6	7.1	9
Georgia	11.2	9.2	7.7	.....	10.1	9.9	9.7	10	9.5	9.2
Florida	12.3	10.1	7	.....	8	10	.....	.....	8	10
Alabama	10.2	7.9	7.8	.....	9.2	9.6	9.5	9.2	9.4	6.9
Mississippi	12.5	11.1	11.6	.....	10.2	10.2	10	10	12	9.6
Louisiana	16.5	10.8	.....	.....	17.5	.....	.....	.....	9.2	9.7
Texas	11.8	9.1	6.2	.....	8.6	7.7	8.5	7.5	8.9	10.3
Arkansas	14.7	11.3	11.6	.....	10.2	10	10.3	9.6	11.2	9.6
Tennessee	10.6	8.9	10.3	.....	10.2	9.9	9.1	10.6	9.9	8
West Virginia	10.6	9.9	15.3	11	10.5	10.8	11.3	11	11.2	10.2
Kentucky	11.1	10.3	10.8	10.4	10.1	11	9.8	10	11.4	10.2
Missouri	12.2	10.9	12.6	13.4	11.4	9.8	10.8	10.6	11.2	10.5
Illinois	10.8	10.6	11.6	11.3	11.3	10.1	10	10.8	10.8	10.4
Indiana	10.4	9.7	13.2	12.1	11.3	11	10.6	10.4	11.2	11.2
Ohio	10.8	9.7	13.1	11.2	10.9	11	9.6	10.6	11.1	11.1
Michigan	11	10.4	12.3	11.1	11	10.4	10.6	11	11.6	11.4
Wisconsin	11.1	11	10.4	11.4	10.2	10.5	10.1	11	10.8	9.7
Minnesota	11.7	12.3	12.4	13	10.6	11	11.6	11.5	11.7	11.2
Iowa	11.5	11.5	11.1	10.2	10.1	10	10	9.8	10.2	10
Kansas	13	11.9	11.5	11.7	11.2	10.7	10.9	10.6	11.1	10.5
Nebraska	12.5	11.7	9.2	11.1	10.5	11.2	9	11	10.7	10.5

Condition of the crops, &c—Continued.

STATES.	CLOVER	TIMOTHY.	POTATOES.		BEANS.		SORGHUM.		APPLES.	PEACH'S
	Average condition July 1, compared with last year.	Average condition July 1, compared with last year.	Total acreage, compared with last year.	Average condition July 1, compared with last year.	Total acreage, compared with last year.	Average condition July 1, compared with last year.	Total acreage, compared with last year.	Average condition July 1, compared with last year.	Average condition, compared with last year.	Average condition, compared with last year.
Maine	9.9	10.3	10.2	9.3	11.5	10	.....	.....	11.8	.....
New Hampshire	11.4	11	11	9.8	10.9	9.7	.....	.....	12.8	10
Vermont	10.8	10.2	11	10.7	11.3	10.6	.....	.....	9.8	.....
Massachusetts	10.6	10.8	10.5	9.8	9.8	9.5	8	10.5	13	9.5
Rhode Island	10.2	10.2	9.5	9.2	10	8	.....	.....	14.7	10
Connecticut	11	11.3	10.6	8.6	9.6	9.3	8.5	8.5	11.6	9.3
New York	11.1	11.2	11	10.3	10.6	10.6	8.7	9.5	10.7	11
New Jersey	10.8	10.7	10.2	9.9	10	10	9	9.3	8.1	5.5
Pennsylvania	10.9	10.6	11.7	10.3	10.1	10.6	8.7	9.4	11.6	9
Delaware	10	10.6	10.6	9.3	11	10	9	9	6.3	2.2
Maryland	10.6	11	15.1	9.6	10	9.8	7.7	8.7	7.1	5
Virginia	11	10.8	10.5	10.4	10.1	10	7.7	8.6	7.1	4.5
North Carolina	10.3	9.8	10.7	10.3	10.2	10.2	7.9	9	8.8	10.1
South Carolina	9.6	.....	10.5	9.7	9.6	8.8	8	9.2	10.1	12.2
Georgia	10.7	10.1	10.5	9.2	10.2	8.9	8.9	8.8	12.4	12.6
Florida	.....	.....	13.6	10.4	7.6	10	4	10	.....	6
Alabama	10.1	9	10	8.2	9 8	8.2	10	7.2	13	13.5
Mississippi	10	10.6	13.2	11.6	10	10.8	10.3	9.7	12.5	18
Louisiana	10	.....	14	10.8	11	11	15	10	11	13.2
Texas	10	10	10.8	9.8	10	10	9.2	9.1	11.1	14
Arkansas	10.1	9.6	12.4	10.2	12.6	9.7	12.1	9.7	9.6	12.4
Tennessee	8.7	8.2	10.3	8.3	10.5	8.3	9.7	8.9	12	10.1
West Virginia	10.5	9.8	12.7	10.6	10.1	10	9.8	10.5	7.8	7.5
Kentucky	9.6	10.1	11.1	11.1	10.1	10.3	9.7	9.6	7	6.8
Missouri	10.4	9.6	12.7	10.9	11.2	10.6	10.1	10.4	7.4	11.5
Illinois	10.2	10.1	11.1	11.3	10.5	10	9.3	10.1	6.7	9.5
Indiana	11.2	11	11.9	11	10.2	10.1	9.5	9.7	6.3	13.4
Ohio	10.5	10.6	12.3	11.3	10.5	10.2	9.5	10	11.2	8.8
Michigan	11.1	10.8	12.6	10.6	11.3	10.3	8.9	10.1	10	9
Wisconsin	10.3	9.2	10.9	10.3	11.5	10.1	8	10.3	8.3	10.4
Minnesota	10.5	10.6	11.5	11	11.5	10.7	9.3	10.8	10.5	5.5
Iowa	9.7	9.4	11.6	10.5	10.7	9.2	9.9	10.8	9.8	11
Kansas	11.4	10.6	15.4	11.3	11.7	10.2	10.3	10.7	11.2	12.5
Nebraska	11	10.4	15.1	12.7	11.5	11.4	11.2	10.9	10.4	11.5

Condition of the crops, &c.—Continued.

STATES.	GRAPES	STRAWBERR'S.	TOBACCO.		COTTON.		SUGAR CANE, (not sorghum.)		WOOL.
	Average condition July 1, compared with last year.	Amount of crop, compared with last year.	Total acreage, compared with last year.	Average condition July 1, compared with last year.	Total acreage, compared with last year.	Average condition July 1, compared with last year.	Total acreage, compared with last year.	Average condition July 1, compared with last year.	How much less wool will be sheared this spring than last?
Maine	8.8	9.7	.....	.....	.....	.....	.....	.....	13.1 per cent.
New Hampshire	10	10.4	.....	.....	.....	.....	.....	.....	12.8 per cent.
Vermont	9.2	10.8	.....	.....	.....	.....	.....	.....	13 per cent.
Massachusetts	7,5	10.9	12	9.6	.....	.....	.....	.....	8 per cent.
Rhode Island	8.5	10	.....	.....	.....	.....	.....	.....	3.3 per cent.
Connecticut	8.3	11.6	11.3	9.6	.....	.....	.....	.....	15 per cent.
New York	10.4	11.5	10.9	10.4	.....	.....	.....	.....	13 per cent.
New Jersey	9.5	10	.....	.....	.....	.....	.....	.....	½ per cent.*
Pennsylvania	9.5	11.3	10.2	10.2	.....	.....	.....	.....	9 per cent.
Delaware	9.6	8.6	.....	.....	.....	.....	.....	.....	10 per cent.
Maryland	10.5	15	8.3	9	.....	.....	.....	.....	18 per cent.
Virginia	9.4	9	10.3	9.5	6.5	9.5	.....	.....	15 per cent.
North Carolina	10.6	10.1	9.3	9.3	6.8	10.4	.....	.....	8 per cent.
South Carolina	9.6	9.2	10	8.7	8.2	9.4	.....	.....	16.7 per cent.
Georgia	10.2	10.1	9	8.9	8.8	9.4	10.6	9.3	14 per cent.
Florida	10.5	9	11	9	8	10.2	11.1	10	20 per cent.
Alabama	10.1	8.9	9.1	8.4	10	9.7	.....	9	11.8 per cent.
Mississippi	10.9	10.7	11.1	10.9	8.2	12.7	12.5	10	18 per cent.
Louisiana	15	13	12	10.5	7.6	13.3	10	11.5	
Texas	20	10.5	8.7	9.8	13.4	10.2	10	10	6.4 per cent.
Arkansas	11.5	11.2	12	9.5	8.7	12.1	.....	.....	9 per cent.*
Tennessee	9.7	8.5	10.4	8.3	8	9.3	.....	.....	9.3 per cent.
West Virginia	10.7	10.1	11	9.9	.....	.....	.....	.....	6 per cent.
Kentucky	11.3	8.3	10.2	10	8.8	9.8	.....	.....	1.3 per cent.
Missouri	11	9.5	9.4	9.6	8.7	10	.....	.....	4 per cent.*
Illinois	10.6	7.3	10.1	9.9	8.1	9.6	.....	.....	4.8 per cent.
Indiana	11.7	8.9	9.2	9.7	.....	.....	.....	.....	3 per cent.
Ohio	9.2	9.5	9.8	9.7	.....	.....	.....	.....	10.1 per cent.
Michigan	10.2	11.8	9.6	10	.....	.....	.....	.....	6.3 per cent.
Wisconsin	10.3	10.1	8.4	9.6	.....	.....	.....	.....	7½ per cent.*
Minnesota	11	11.8	10	10.5	.....	.....	.....	.....	2.1 per cent.
Iowa	9.8	9.3	9	9.3	.....	.....	.....	.....	0.8 per cent.
Kansas	11.6	11.2	9.8	10.1	9.5	10.5	.....	.....	3 per cent.*
Nebraska	12.7	11.7	10.4	10.8	.....	.....	.....	.....	17 per cent.

* More.

EXTRACTS FROM CORRESPONDENCE.

UTAH AGRICULTURE.

Salt Lake City, Utah.—The spring, up to the middle of May, was very propitious for our seeds, and fine rains, interspersed with fine weather, gave everything such a start that the grasshoppers or locusts could not make much headway in their destructive warfare; but since that date a dry spell has set in, and these insects have flourished and grown prodigiously. Our citizens in various parts of the Territory set to work, digging ditches, driving the "hoppers" in, and then burying them; also driving them into creeks, having traps or baskets, gunny-sacks, or netting placed to catch them, and then burying them. By these methods many millions have been destroyed. On one small stream there were caught, to my knowledge, twenty bushels a day, about the size of house-flies. But nevertheless, they still crowded the gardens, the fields, and thoroughfares, and have done considerable damage in various places. I presume the breadth of land put in cultivation this spring is at least double that of any previous year, and as there are no grasshoppers in the north part of the Territory, (though very thick in the south,) we have hopes of raising sufficient to victual us. The grasshoppers have used me and my garden pretty badly. Have saved nothing but peas and squashes, and my trees have suffered considerably from them. They commenced to fly ten days ago, taking a southeasterly course.

Utah county, Utah.—The prospect of our fruit crop is fair, although we have had myriads of grasshoppers. They have destroyed much of the crops, many of our farmers warring with them, and burying them in the ground, &c.; Mr. A. H. Scott, with the help of his family, having bagged and buried about 80 bushels, and he now expects to make quite a crop of wheat. We take pleasure in acknowledging the regular receipt of monthly reports, which are perused by members of the club with profit and satisfaction. At our meeting last evening Mr. Charles Twelves brought in a sample of green peas, from seed forwarded by you this spring; the name is Advance, a sweet, excellent growing pea. On June 1 last, the same gentleman brought forward a sample of the Philadelphia Early, ready for use; they do well here. * * * H. A. Cheever, of this place, has grown the Excelenta strawberry, of large size and good flavor, 25 berries weighing one pound.

COTTON.

Craven county, N. C.—There has been quite a falling off in the amount of cotton planted this year, compared with 1867, in this county, owing to the fact that farmers failed to grow sufficient breadstuffs last season for their support. Attention has been turned almost entirely to the culture of corn, field peas, potatoes, wheat and rye; consequently only about one-third of the land planted in cotton last year has been devoted to that crop in this section the present season. The inability to feed their animals, from the want of grain, the absolute necessity of making something to eat, the very low price at which cotton sold during most of the last season, and the fear that Congress at a late period of the present session would re-enact a tax upon the cotton crop, together with the impossibility of farmers procuring funds to enable them to purchase supplies, and the scarcity of horses and mules, have operated greatly to deter the farmers of the State from attempting to cultivate cotton on a large scale.

AFFAIRS IN TEXAS.

Nueces county, Texas.—The enhanced value of wool, and the great demand for beef cattle for export, have had a tendency to turn all planters to stock-

raising, and to leave off planting either cotton or corn—both uncertain crops, at least in this county. The high prices paid by our merchants during the past season have given a fresh impetus to wool-growing. Nearly the entire clip of this spring has already been purchased, and at paying prices. Our flocks are gradually being improved, and have done well since October last. The clip is about 25 per cent. more than last year. At no time have the wool-growers had their pockets so well lined with money as this season.

The liberal prices paid by our merchants is drawing an immense amount of wool and hides from the interior of Mexico, through this port, which, together with our home production from all the counties west of us, makes the county more prosperous than at any time within my recollection. A great amount of beef has been packed at this point by the infiltration process, with fine success. Next winter a great deal more will be packed by the same process. The sheep stock suffered from drought in the earlier part of the month, but the general rains commencing on the 20th have set all things right, and all are again doing well. Up to the present time lambs have done splendidly, and if we have no loss this summer, the wool clip of 1869 will be 50 per cent. more than that of 1867. Wool, with careful management, can be grown in this county at 15 cents per pound, specie, and if it continues to improve in price, and flocks do well, our county will be in a most flourishing condition. We have not yet tried any mutton sheep, but it is our intention this fall to import a few of Scott's Kentucky, or Cotswolds, to see how they will do in our hot, dry climate.

FRUITS IN FLORIDA.

Putnam county, Fla.—Before the war the lands of this county were not much cultivated. The hummock lands were not suited to the growth of cotton, and the agricultural interests were confined mainly to stock-raising. Since the war, however, a new system of agriculture has been introduced, and the attention of our people is now directed to the culture of fruits and vegetables, particularly upon the lands bordering on the St. John's river. The other lands remain in about the same condition as before the war. The culture of vegetables for the early northern markets is a new experiment, initiated by northern men, and has so far been attended with very flattering success.

With proper facilities for transportation, the cities of the north might be supplied with early vegetables raised here by open field culture, and which are now obtained only at great expense through the agency of forcing pits and hot-houses.

But the attention of our people is mainly directed to the culture of fruits, especially those of the orange family, embracing the orange proper, the lemon, lime, and citron; all of which thrive well in this latitude. As yet there are but few groves that have begun to bear, but the young groves of one and two years' growth promise well, and the number of trees that have been set out during the past two years, between this place and Jacksonville, will not fall far short of 250,000.

INSECTS.

La Pointe county, Wis.—The potato bugs have made their appearance and commenced their ravages on the vines; we do all that can be done to destroy them.

Polk county, Wis.—The potato crop looks well, but would have been entirely destroyed if growers had not daily picked the bugs, so that but few eggs were hatched. In some gardens, where this was neglected, the tops are entirely eaten up.

Carver county, Minn.—Our crops promise well except potatoes, which, on account of the potato bug, I fear will be a partial failure.

Green Lake county, Wis.—The potato bugs are numerous and threaten to destroy the entire crop, but the season is so far advanced that a portion may be spared.

Cass county, Mich.—The ten-lined potato bug (beetle) is rapidly extending. First seen here last year.

Mahoning county, Ohio.—The cut worm has been very bad on many pieces of corn, otherwise corn would be good.

Stark county, Ohio.—Corn is backward and injured by worms.

Linn county, Kansas.—The chintz bugs have injured late wheat somewhat, spring wheat in particular.

Rutherford county, Tenn.—Insects are preying upon some crops. The red ants, the louse, (*aphis,*) and grasshoppers are injuring the late planting, and the boll worm has appeared in several localities.

DISEASES OF HORSES AND CATTLE.

Holmes county, Miss.—That dreadful pest of stock and cattle (sharbone) has again made its appearance in its most terrible form. Mules being so valuable, and the impoverished condition of the people, prevents experiments, but I am satisfied that the cauterization of the affected part with nitric acid, and the internal administration of muriated tincture of iron, would prove beneficial. One party has used nitric acid internally, 30 drops in a quart of water with a little sugar, used as a drench, and the success seems certain. I did not have nitric acid, but administered last night to two mules 50 drops of the nitro-muriatic acid, with decided benefit: they are living this morning, and I shall repeat the dose. The poison oak root was tried, as recommended in the April number of the Agricultural Report, but with no success whatever. I know of five mules cured one after another by the administration of nitric acid—30 drops—with the external use of pine tar. Some attribute this disease to the sting of a fly. It attacks cows, horses, mules, &c. In my neighborhood 108 mules have died within the last 18 days.

Clay county, Ky.—From the 1st of May to the 14th of June there has been prevalent here a disease that has killed 50 to 60 head of cattle. It seems to be a kind of fever. Some die in three days, and from that up to 20 days. When opened they are found mortified inside. I have found calomel a certain cure, giving to three-year olds 40 grains; under three years, 20 to 35 grains.

HOG CHOLERA.

Madison county, Miss.—I have closely observed the various symptoms and stages of a disease among swine, known as cholera, and have tried nearly all the published remedies, both as preventives and cures, with but little success. About seven years since I determined to adopt remedies used by my father near forty years ago for a similar disease. I have not lost a hog from cholera when I used the remedy as a preventive, and in every instance when, from neglect, the disease made its appearance among my hogs, I have succeeded in curing it in a few days. Procure two or more large barrels and have them placed convenient to the kitchen; deposit all the pot-liquor, dish-water, and greasy water of any kind, refuse pieces of bacon, and a few buckets full of soap-suds. Let it stand a few days or until fermentation begins; then add to each barrel one bushel of pine charcoal, (I have never used any other kind,) a half bushel of corn-meal, one handful of salt, and one-half pound of copperas. Let it stand a short time so that the coal may become thoroughly saturated with the liquid, then pour into troughs made for the purpose. One barrel thus prepared, given

once or twice a week, will be sufficient for fifty hogs, and prevent cholera and keep them in a healthy condition.

Sullivan county, Tenn.—The hog cholera made its appearance about the 1st instant, but in a mild form; is there no preventive or remedy? Other farm stock exempt from disease. [There is no remedy whatever.—Ed. Rep.]

Hickman county, Tenn.—Hog cholera is again making its appearance. In some neighborhoods one-half of the killing hogs for the coming season have died. It is difficult to find a preventive.

CULTIVATION OF FRUIT IN NORTHERN IOWA.

George W. Wheaton, esq., of Wilson's Grove, Fayette county, Iowa, supplies the following interesting details of his experience in fruit-growing on the prairies of northern Iowa:

For the last ten years I have been endeavoring to raise an orchard on the prairie in northern Iowa. After many disappointments, by not knowing how to do it, and the varieties that would flourish here, I have at length succeeded tolerably well. Raising an orchard here is a very different matter from what it is in northern Indiana or other good fruit regions; yet, by selecting the proper varieties, and the right kind of cultivation and protection, success is certain. Many persons are deterred from emigrating to this country under the impression that fruit cannot be grown here, but let the news go forth that, with judicious selections, and proper care, as good apples can be grown in northern Iowa as in any part of the northwest. The proper varieties are hard to find, however, as most nurserymen will recommend such as they have to sell. I am not a nurseryman and have no trees to sell, but I have tested quite a number of varieties of grafted fruit and a good many seedlings, and my experience may be of benefit to others who contemplate starting orchards in this region. Every person, before paying his money for trees, should resolve to take care of them or he had better keep his money. Thousands of dollars are lost in this country every year by buying unsuitable trees, and more by not taking care of them after they are planted.

The varieties which have succeeded best with me are, Duchess of Oldenburg, Tallman's Sweet, Fameuse, English Golden Russet, Perry Russet, Roxbury, Antrim, Strawberry, and Red Astrachan. The Duchess of Oldenburg, is the hardiest of all, and I never have had any of the trees injured in the least by our hardest winters. The Jonathan also succeeds tolerably well with me, and I have one tree, about ten years old, which last year bore a bushel of most excellent apples. I consider the Oldenburg, Fameuse, and Tallman's Sweet the most valuable for this place, and they are all abundant and early bearers. Many suppose seedlings to be more hardy than grafted fruit, but I do not find such to be the case. Out of 500 seedlings I have not more than 8 or 10 as hardy as the kinds enumerated; besides, there is an uncertainty in getting productive trees or good fruit from seedlings.

The next thing in order is the preparation of the soil. If it is designed to set trees on prairie with a clay subsoil, which most of our prairies have, it should be ploughed at least a foot deep in order to make a better and firmer soil for the trees; the surface soil alone being too loose and peaty, and gives too soft and sappy a growth to the trees. I think it best to set the trees about three inches deeper than they grew in the nursery, and they should be well cultivated until about the middle of July, when cultivation should cease in order to let the trees ripen up for winter.

About the time the ground freezes there should be an inch or two of barnyard manure spread about the roots in order to prevent dry freezing, which destroys great numbers of young trees and shrubs on the prairies. I have lost quite a number of young trees from this cause. It is also best to set the trees leaning somewhat to the southwest, as they generally do better when set in this manner than when perpendicular. Before winter sets in each tree should have the trunk wound with a rope made of prairie hay, which is an effectual preventive against injury by rabbits, and also prevents the bursting of the bark of the tree. This bursting of the bark seriously injures the tree, and various expedients are resorted to to prevent it; some nail a piece of siding on the south side of the tree, others tie a few cornstalks around the tree; either will do some good, but a hay rope is best; it should be removed in the spring.

It is a good plan to raise corn in the orchard every year, and to leave the stalks standing until the next spring, as they help to keep the snow on the ground and prevent deep freezing. If a part of the orchard is set with currant bushes or black-cap raspberries they will answer the same purpose, and will be found profitable. At the time the orchard is set a screen should be planted on the north and west sides. A row of Scotch pine set six feet apart, or a row of Norway spruce set four feet apart, will make a beautiful and effective screen by the time the

trees come into bearing if given good cultivation, and young trees can be bought by the thousand very cheap. A good and cheaper screen can be made by planting two or three rows of the acorns of the common black or scrub oak, which retains its leaves all winter, and with good cultivation will grow rapidly. Fruit trees in this region should always be planted out in the spring, as they are much more likely to live than when set out in the fall. An important consideration is to set good trees. The best I have, and the best I have seen, came from Wisconsin. From some cause eastern trees do not succeed so well here; they are grown too closely in the nursery and have long, naked stems; no fruit tree for the prairie should have a naked trunk of more than two feet.

I have experimented somewhat with pears, as I have a great desire to grow them, but my efforts have not been sucessful, and, without having a single pear, my trees are now all dead. I have also tested several varieties of plums, but find none that will pay for cultivation. They are all too tender here except our native wild plum, of which we have an abundance, of good quality, in our groves, and which can be readily transplanted to the orchard, where they will produce abundantly.

Cherry trees of the Morello class grow very well, and are hardy, but they have not yet been very productive of fruit with me.

The Concord grape grows well, and produces abundantly and generally ripens its fruit. It has never been attacked with mildew or rot, but the vines need protection in the winter. The Catawba ripens its fruit about one-third of the time when they do not rot.

FRUIT CULTURE IN WESTERN MICHIGAN.

Henry S. Chubb, corresponding secretary Lake Shore and Western Michigan Horticultural Association, writes as follows of the Grand Haven fruit region:

The prospect for peaches among the orchards of this vicinity is excellent. Every living peach tree has on its limbs a superabundance of rapidly advancing fruit. The prospect for apples is not as large. Strawberries are very abundant and are selling at from 10 cents to 15 cents per quart. The late exhibition of strawberries and other small fruit, at Spring Lake, showed that this sandy region is well adapted to the production of these first fruits of the season. Gooseberries, currants, and raspberries also promise well. The cherry trees are laden with fruit, and, notwithstanding the curculio, there will be a fair crop of plums. Grapes, also, are looking well.

An orchard of 20 acres, peaches and apples, planted about 10 years ago in this city, is for the first time bearing a full crop. It is estimated that there will be about 3,000 bushels of peaches this season, besides the apples, pears and grapes, which occupy more than half the enclosure. The other old orchards of this vicinity, some of which have borne well before, are also heavily laden with peaches.

The upward tendency of prices in fruit lands is a sure indication of the increasing interest attached to fruit-growing in this vicinity. Large tracts of land around the city, purchased less than a year ago for from $5 to $11 per acre, have been selling rapidly in ten acre lots at from $25 to $100 per acre, for fruit lands; while close to the city, one-quarter acre lots in almost inaccessible positions on hillsides, &c., held for years at $25 a lot, are now selling at $75 to $100. Some of the ten-acre lots, sold for fruit lands at $100 an acre late last fall, are now realizing $800 per acre in quarter-acre lots. Fruit land in eligible locations can still be had for $25 per acre in the wild state, but this price is very likely to double before the close of this season. Improved fruit lands vary from $500 to $800 per acre when in bearing. These prices, however, do not include the present crop, which promises so well that it will almost purchase the land at these prices.

FRUIT CULTURE IN WISCONSIN.

L. L. Fairchild, of Dodge county, Wisconsin, writes as follows in reference to the progress of fruit culture in his section of the State:

There are a goodly number of orchards in this county, producing from 200 to 500 bushels, and occasionally higher, up to 1,500 bushels. We are in latitude 43½° north, and the severity of our winters (the mercury occasionally running as low as 35 degrees below zero) makes it absolutely necessary that only the very hardiest varieties of fruit trees be planted. Many having failed with favorite trees brought from the east, thought it useless to try to grow fruit, but the persevering ones who kept on trying have found a few varieties that bid fair to stand the test of our severest winters. The Duchess of Oldenburg, Red Astrachan, Golden and Perry Russets, Winesap, Tallman's Sweet, Fameuse, and some others seem reliable. The quality of our apples I think superior to fruit produced in southern Illinois.

We have plenty of wild plums; some of them are quite good, and on account of the toughness of their skin not so liable to be stung by the curculio as the tame varieties. The hardier varieties of the tame plums grow finely, but the curculio stings all the fruit.

Wild black and choke cherries are plenty, but the fine cultivated kinds are mostly failures. The common Morello grows well and bears sparsely. The Early Richmond grows well, but so far as my observation extends does not bear very profusely.

The Isabella grape with proper care, will ripen about one year in three. One man tells me that by severe cutting back he succeeds in ripening them nearly every season. The Hartford Prolific, Concord, Diana, Northern Muscadine, Delaware and some others do well. They should be laid down and covered in the fall with an inch or two of earth, to guard against injury to the fruit buds. I left a vine each of Hartford Prolific and Clinton on the trellis the past winter, and both are now throwing out fruit spurs, though the mercury at one time sunk 32 degrees below zero.

Doolittle Black Cap, Purple Cane, Yellow Cap, and Cincinnati Red raspberries are all hardy and produce good crops. Brinckle's Orange will not succeed without protection.

Wilson's, Russell's Prolific, Agriculturist, and some other varieties of strawberries do well. It is better to cover in the winter, as the frost throws out the roots. The Triomphe de Gand is worthless here, being unproductive. Currants, gooseberries and tomatoes are abundant.

WHEAT-GROWING IN THE NORTHWEST.

A casual correspondent in Iowa, referring to the correspondence between Congressman Donelly and the Commissioner of Agriculture, in the monthly report for June, questions the conclusion of the congressman that the diminished yield of wheat in his State "is to be attributed to a degeneracy in the vitality of the seed more than exhaustion of fertility of the soil." The following extracts from his letter are made:

One thing is very certain, that nothing will impoverish the richest soil and the most industrious people more certainly than devoting all their energies to the production of a single crop, and sending that crop away to distant markets for sale and consumption. So far from encouraging this tendency in any people, it ought to be earnestly discouraged. If the people of Minnesota can find no other profitable crop to plant in their soil, "for eighteen years in succession," no spirit of prophecy is required to foretell what their fate will be in a very short space of time, comparatively. The only hope is in the intelligent, well-directed efforts of the people of Minnesota themselves. Rotation with other crops must be their first object. No soil that is at all worn can have justice done it by planting the same crop two years in succession. It must be rested with some other crop—with grass, or with fallow. Unquestionably, good seed is a requisite, but only one of many quite as imperatively necessary. We have skinned and skinned our lands, western and southern fashion, with the same result. Now, living in an old settled county, with railways and other conveniences bringing us close to the large markets, and with prices of grain that will compensate for taking intelligent pains to do differently, we must either do differently, or give up this branch of agriculture to newer virgin soils farther west, or elsewhere. We are all busily at work now at the former, and so far find our efforts well paid. Nothing is more certain than that it is far better to till but 20, or even 10 acres of land, and do it right, than to skin over 100 year after year in the old style.

He thus illustrates the value of a proper seed distribution:

About four years ago the superscription was lost on a package of one pound of Tappahannock wheat that was passing through our post office. After knocking about the office for some time, the postmaster gave it to a wide-awake farmer of this county. At first he paid but little attention to it, and sowed it broadcast, in the usual way, on a piece of land he had prepared for it. The product of that pound was 20 pounds of most beautiful grain. Though he had never raised wheat to any extent, he liked its looks so well that he bought a drill expressly to plant it the next year. The details of his cultivation are not at hand, but this year, from that small beginning, he will have upwards of 1,000 bushels of as choice wheat as ever was seen, from 40 acres of land. He has just shown a sample, which is better, if possible, than the original. When it is threshed we will give its weight per bushel, and send a sample to the department, if desired. I have advised him to advertise and scatter this seed widely, and not sell any of it to the mills, and that he had better not sow the same seed on the same land for a succession of years. He is very confident, however, that by his division of fields and rotating to different parts of his farm, he can maintain the quality, if not gain in it, for an indefinite number of years. The seed is now perfectly pure, though in 40 acres he found 16 heads of rye, which he carefully cut out. If this had not been done, it would have injured his seed very much for future use. Too great

pains cannot be taken to keep specimens of this wheat perfectly pure and free from weed-seeds or other grain of any kind whatever.

For my own part, if the price of a very superior wheat keeps up, as it has for many years, I am confident that it will pay to cultivate wheat somewhat as we do corn. If not, why not? The yield is not quite in so tangible a shape or so large a pile, but it is correspondingly of more value. Let as many farmers as can be persuaded to do so, make the effort this season, on even a fraction of an acre; sow in drills, in some dry spot, where it will not winter-kill. In spring work it as soon as possible with the cultivator, and continue to work at proper intervals as long as possible, to keep down weeds, to aerate the soil, to invigorate the plants, &c., precisely as we do corn. Why should not the result be the same? Why should we not do this? Only because we have not been accustomed to do it, and because we "haven't time." These reasons are altogether unsatisfactory. We all know that a single grain, sown by itself, will tiller out, if it has room, over a space of four or five feet in diameter, with 20 to 50 or more stalks, containing from 300 to 1,500 grains. This yield is never even approximated in field culture. The more we reflect on these facts the more we must be convinced that the yield which it is not only possible but easy for us to obtain from our soils has not yet even been approached.

CONSULAR CORRESPONDENCE.

From Russia.

The following extracts from a letter written by Eugene Schuyler, esq., United States consul at Moscow, to the Commissioner of Agriculture, give interesting data concerning Russian flax, fruits, and wine. Further experiments in the introduction of apples from that country, for the northwest, should be undertaken The *Duchess of Oldenburg* has already proved one of the most hardy and reliable apples of the extreme northwest, and it is probable that other varieties from northern Russia may be found equally valuable:

The chief agricultural products of my district are flax, hemp, the cereals, and apples. Good varieties of wine are made in Russia, but only in the Caucasus and the Crimea, which are in the district of the consulate of Odessa.

The best flax districts are not far from Moscow.

With regard to hemp, a Mr. Puzyanof has invented a mode of bleaching it so as to be perfectly white, and of softening the fibre, without injuring its durability. If you wish, I will endeavor to procure for you the particulars of this invention.

The apples of the Crimea are fully equal to the best apples of America; those of central Russia, while not so good, are very fair. I received some time ago a letter from Mr. Smith, the editor of the Wisconsin Farmer, saying that in the district lying between Lake Michigan and the Rocky mountains all the late apples are winter-killed, and requesting me to send him some grafts of Russian apples, as the climates are similar. After consultation with Mr. Krasnoglazof, the best pomologist of Russia, I forwarded to Wisconsin some grafts, but do not yet know if they reached their destination safely. Mr. Kraznoglazof advised me to send out young trees in the autumn, as that would be much better. I would suggest to you that it might be well for you to import some trees, and give the people of the northwest a fair chance to try if these apples would succeed there. Should you wish any sent, please give directions as to the mode of sending them.

Beets are also very largely cultivated for sugar. Almost all the sugar used in Russia is produced in the country.

There is near Moscow an imperial agricultural academy. I am unable to say whether it is good; but two students there have come to me for information about the agricultural colleges of the United States, saying that they were dissatisfied with the instruction given here.

From the Azores.

The United States consul at the Azores, Charles W. Dabney, esq., writing from Fayal, presents this picture of the primitive condition of agriculture in a country that contains no theoretic farmers, and remains in blissful ignorance of "book farming" and the mechanical contrivances for shirking honest labor:

Imagine, sir, that the plough used by all here is of the same improved shape as was used anterior to the flight of the Israelites from Egypt, and their carts are of a type coeval!

I once imported one of the lightest ploughs used in Massachusetts. I used my personal influence to induce one of the most enlightened farmers to try it. In a very short time he

objected, saying that the use of it would kill his cattle! (Cows are generally used.) I imported a pair of wheels and an axletree, and had a cart made, in other respects similar to those used here, (not to attempt too much at once.) I gave it to a cartman who with others was engaged in carting hogsheads of sugar, who, finding that with greater ease he could convey double the weight, was delighted. At the end of three days he returned the cart, saying that it jolted so that it would destroy his cattle! His fellow-countrymen could not be convinced that if the cart were not driven faster the jolting could not be greater.

EXPORTATION OF WHEAT TO ENGLAND.

A very great increase in wheat exportation over last year has been heretofore noticed. Official statements of imports into Great Britain for five months of 1868, up to May 31, represent a movement of 3,034,093 cwt., against 858,116 cwt. for a similar period of last year—about 1,000,000 bushels per month. The following table shows the total imports in detail. It will be seen that only Russia exceeds our figures:

	1867.	1868.
From Russia.....cwt..	4,587,629	3,895,033
From Denmark..... do..	293,503	221,165
From Prussia..... do..	3,015,614	1,716,566
From Schleswig-Holstein and Lauenburg..... do..	70,175	27,879
From Mecklenburg..... do..	448,711	317,150
From Hanse Towns..... do..	424,546	330,766
From France..... do..	321,627	12,424
From Illyria, Croatia, and Dalmatia..... do..	213,289	558,308
From Turkey, Wallachia, and Moldavia..... do..	1,152,682	1,633,838
From Egypt..... do..	26,998	2,013,279
From United States..... do..	858,116	3,034,093
From Chili..... do..	723,355	249,362
From British North America..... do..	87	96,802
From other countries..... do..	367,682	674,074
Total..... do..	12,504,077	14,780,739

Summary of the crop for 1866, *in the Kingdom of Prussia, according to the census of the present season.*

Provinces.	WHEAT.		RYE.		BARLEY.		OATS.		PEAS.		BUCKWHEAT.		RAPE.	
	Crop of 1866, per acre.	Average crop, per acre.	Crop of 1866, per acre.	Average crop, per acre.	Crop of 1866, per acre.	Average crop, per acre.	Crop of 1866, per acre.	Average crop, per acre.	Crop of 1866, per acre.	Average crop, per acre.	Crop of 1866, per acre.	Average crop, per acre.	Crop of 1866, per acre.	Average crop, per acre.
	Bush.	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*	*Bush.*
1. Prussia, (proper)	20.35	22.32	20.40	21.93	25.53	28.53	25.36	29.80	13.80	16.10	19.92	17.68	20.49	21.19
2. Brandenburg	23.66	23.83	11.06	18.19	25.03	26.76	26.80	28.44	12.40	15.31	10.20	15.36	12.52	19.15
3. Pomerania	21.07	22.56	14.64	19.39	19.22	22.75	27.26	27.12	14.32	15.57	19.08	20.08	14.04	18.96
4. Silesia	19.36	21.81	16.94	21.40	25.15	28.32	31.89	35.35	19.22	16.39	15.79	18.02	19.68	20.85
5. Posen, (Prussian Poland)	20.85	22.17	15.81	18.98	20.44	23.08	19.87	25.08	11.83	15.02	12.79	13.27	19.53	18.40
6. Saxony, (Prussian)	19.27	23.06	16.82	22.39	26.42	29.16	33.84	36.52	17.83	17.37	.....	.....	14.56	22.24
7. Westphalia	19.20	19.77	18.19	21.02	21.86	25.29	32.23	32.66	15.02	16.58	19.56	20.85	17.66	19.58
8. Rhine, (Prussia)	20.30	23.52	22.29	24.40	29.87	34.70	38.06	41.78	18.36	21.19	24.69	28.20	22.72	22.17
9. Hohenzollern	17.97	28.27	15.48	23.44	33.62	34.20	37.77	36.93	23.49	21.40	.....	.....	15.57	22.12
Average	20.56	23.04	16.84	21.24	25.24	28.08	30.33	32.64	16.24	17.20	17.42	19.08	17.42	20.52

METEOROLOGY.

[Compiled in the Department of Agriculture, from the reports made by the observers for the Smithsonian Institution.]

JUNE, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain fall, (in inches and tenths,) for June, 1868, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m., and 2 and 9 p. m.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MAINE.				°		°	°	*In.*
Steuben	Washington	J. D. Parker	27	82	9	47	58.7	2.00
West Waterville	Kennebec	B. F. Wilbur	20	96	12	50	64.6	2.84
Gardiner	....do	R. H. Gardiner	20, 27	81	4	45	63.0	3.20
Standish	Cumberland	John P. Moulton	20	92	3, 4	48	65.4	2.87
Norway	Oxford	Howard D. Smith	20	90	3	49	64.4	.....
Cornish	York	Silas West	20	89	3, 4	49	64.3	3.11
Cornishville	....do	G. W. Guptill	20	89	3, 4	50	65.3	3.58
Averages							63.7	2.47
NEW HAMPSHIRE.								
Concord	Merrimack	John T. Wheeler	20	93	11	49	67.2	.....
Goffstown Centre	Hillsboro'	Alfred Colby	19, 20	93	5	49	66.2	3.50
Averages							66.7	3.50
VERMONT.								
Lunenburg	Essex	H. A. Cutting	18	87	3	36	63.6	4.40
Woodstock	Windsor	Doton & Miller	18	86	2	47	63.1	.....
St. Albans	Franklin	A. H. I. Gilmour	18	90	2	48	65.9	.....
Middlebury	Addison	H. A. Sheldon	17, 20	82	2	47	64.8	3.49
Averages							64.4	3.95
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	20	94	3, 4	49	64.7	2.00
Milton	Norfolk	Rev. A. K. Teele	20	93	4	45	66.1	2.62
Cambridge	Middlesex	Rev. J. B. Perry	19	98	4, 11	49	67.5	.....
North Billerica	....do	Rev. E. Nason	20	88	3	48	67.3	.....
West Newton	....do	John H. Bixby	20	98	4	52	68.2	2.03
New Bedford	Bristol	Samuel Rodman	27	82	28	52	62.9	6.31
Mendon	Worcester	Jno. G. Metcalf, M. D	20	87	11	49	64.2	2.30
Lunenburg	....do	Geo. A. Cunningham	20	91	11	49	66.7	4.05
Amherst	Hampshire	Prof. E. S. Snell	20	89	11	51	66.2	2.44
Richmond	Berkshire	Wm. Bacon	19	92	10	42	68.6	7.94
Williams College	....do	Prof. A. Hopkins	19, 20	88	3	47	69.0	1.82
Averages							66.5	3.50

Table showing the range of the thermometer, &c., for June—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
RHODE ISLAND.				°		°	°	*In.*
Newport	Newport	Wm. H. Crandall	13	79	2, 4, 12	50	60.5	3.48
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	8	88	14	46	62.9	3.19
Columbia	Tolland	Wm. H. Yeomans	20	90	5	50	66.9	.....
Middletown	Middlesex	Prof. John Johnston	20	91	4	50	65.7	4.82
Colebrook	Litchfield	Charlotte Rockwell	19, 20	89	11	48	64.7	.....
Waterbury	New Haven	Rev. R. G. Williams	20	84	11	48	65.1	5.11
Averages							65.1	4.37
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh's	20	89	4	55	68.7	2.74
South Hartford	Washington	G. M. Ingalsbe	18	93	7	52	69.9	2.90
Troy	Rensselaer	Jno. W. Heimstreet	19, 20	88	2	52	68.8	3.20
Garrison's	Putnam	Thomas B. Arden	20	92	11	53	67.5	4.43
Throg's Neck	Westchester	Miss E. Morris	20	90	4	53	67.7	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	20	87	5, 11	53	66.6	5.86
Columbia College	....do	Prof. Chas. A. Joy	20	90	5, 11	53	67.8	3.59
Flatbush	King's	Eli T. Mack	19, 27	85	4	49	66.3	3.35
Newburgh	Orange	James H. Gardiner	20	92	11, 12	54	69.5	3.22
Minaville	Montgomery	Prof. J. W. Bussing	18	92	2	50	67.6	3.30
Gouverneur	St. Lawrence	C. H. Russell	16	89	3, 9	48	66.7	1.83
North Hammond	....do	C. A. Wooster	16	96	7	50	70.2	0.72
Houseville	Lewis	Walter D. Yale	15, 17, 18	86	2	43	65.4	4.53
South Trenton	Oneida	Storrs Barrows	14	92	1	40	65.8	3.82
Cazenovia	Madison	Prof. Wm. Soule	18	87	2	46	64.7	.....
Oneida	....do	S. Spooner, M. D	15, 18	90	2	46	65.0	6.83
Depauville	Jefferson	Henry Haas	14	86	2, 7	46	63.6	2.04
Oswego	Oswego	Wm. S. Malcolm	15, 30	82	7	44	61.2	3.14
Palermo	....do	E. B. Bartlett	15	93	2	41	65.7	2.80
Nichols	Tioga	Robert Howell	18	96	2	44	66.2	.....
Newark Valley	....do	Rev. Sam'l Johnson	18, 19	90	10	44	64.0	.....
Geneva	Ontario	Rev. Dr. W. D. Wilson	18	87	3, 7	47	67.0	3.12
Rochester	Monroe	H. W. Mathews	19	84	7	48	66.4	2.87
Little Genesee	Allegany	Daniel Edwards	15, 18	92	10	40	64.7	3.95
Suspension Bridge	Niagara	W. M. Jones	15	96	10	42	64.8	2.65
Buffalo	Erie	Wm. Ives	15	91	9	47	67.0	2.51
Averages							66.5	3.34
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	20	92	11	52	67.6	6.81
Newark	Essex	W. A. Whitehead	20	86	3	50	65.9	5.90
New Brunswick	Middlesex	Geo. H. Cook	20	91	4, 5	53	67.3	6.45
Trenton	Mercer	E. R. Cook	20	89	5	57	72.3	6.23
Moorestown	Burlington	Thos. J. Beans	20	90	4, 5	52	68.9	3.42
Elwood	Atlantic	Joseph S. Fritts	20	94	3	49	68.5	.....
Dover	Morris	Howard Shriver	27	93	3	56	71.3	.....
Rio Grande	Cape May	Jerusha R. Palmer	20	88	4, 11	52	67.1	6.81
Newfield	Gloucester	E. D. Couch	20	96	4	55	71.0	.....
Greenwich	Cumberland	R. C. Sheppard	20	88	3	56	69.8	3.33
Vineland	....do	John Ingram, M. D	20	100	11, 12	56	72.7	3.95
Averages							69.3	5.37

Table showing the range of the thermometer, &c., for June—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
PENNSYLVANIA.				°		°	°	*In.*
Nyces	Pike	John Grathwohl	18	93	10	49	67.4	3.55
Fallsington	Bucks	Eben'r Hance	20	89	4	53	68.1	7.00
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	20	88	5, 11	55	71.9	3.69
Germantown	do	Thomas Meehan	20	95	11	50	70.7	.....
Horsham	Montgomery	Miss Anna Spencer	20	86	4	53	67.9	7.57
Plymouth Meeting	do	M. H. Corson	20	88	4, 5	54	68.8	.....
Dyberry	Wayne	Theodore Day	19, 20	89	2, 3, 13	44	64.5	.....
Whitehall	Lehigh	Edward Kohler	18, 20	87	3	44	68.0	.....
Factoryville	Wyoming	R. Sisson	20	91	3	45	65.9	2.75
Reading	Berks	J. Heyl Raser	20	92	3	51	71.1	.....
Parkesville	Chester	F. Darlington, M. D	20	92	11	52	67.3	4.68
Ephrata	Lancaster	W. H. Spera	19	94	3	50	72.5	1.90
Harrisburg	Dauphin	John Heisely, M. D.	19, 20	91	3, 4, 5	58	72.9	3.40
Tioga	Tioga	E. T. Bentley	18	101	10	44	68.1	3.17
Lewisburg	Union	Prof. C. S. James	19	91	3, 9	52	68.8	2.71
Ickesburg	Perry	Wm. E. Baker	18	93	2, 3	52	69.2	1.93
Grampian Hills	Clearfield	Elisha Fenton	14, 18	88	3	44	63.9	2.75
Johnstown	Cambria	David Peelor	15	86	10	42	64.6	3.40
Franklin	Venango	Rev. M. A. Tolman	15	92	10	50	68.5	.....
Connellsville	Fayette	John Taylor	29	90	10	47	69.6	.....
New Castle	Lawrence	E. M. McConnell	15	90	10	39	69.4	.....
Beaver	Beaver	Rev. R. T. Taylor	15, 19, 30	87	9	50	69.5	1.50
Canonsburg	Washington	Rev. W. Smith, D. D	15	89	10	43	69.2	0.85
Fountain Dale	Adams	S. C. Walker	19	92	3	55	70.4	3.92
West Chester	Chester	Dr. George Martin	20	92	3	54	71.3	4.15
Averages							68.8	3.47
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	20	91	3, 4, 11	56	70.5	2.37
Annapolis	Anne Arundel	Wm. R. Goodman	20	90	4, 5, 11	59	73.0	3.37
Emmittsburg	Frederick	Eli Smith	18, 19, 20	90	11	56	71.1	.....
Mt. St. Mary's Coll	do	Prof. C. H. Jourdan	18, 19	86	3, 11	53	68.1	4.65
Averages							70.7	3.46
VIRGINIA.								
Surry C. H	Surry	B. W. Jones	20	93	1, 11	62	75.3	.....
Johnsontown	North Hampton	C. R. Moore	20	89	3, 4, 10	60	71.7	.....
Comorn	King George	E. Tayloe	20	91	4, 10, 11	60	70.8	3.02
Mt. Solon	Augusta	J. T. Clarke, M. D	19	89	11	57	71.3	2.43
Lynchburg	Bedford	C. I. Merriwether	19	85	11	58	.....	.....
Snowville	Pulaski	J. W. Stalmaker	20, 29	86	12, 13	48	67.0	1.21
Wytheville	Wythe	Rev. Jas. A. Brown	29	82	12	48	65.8	2.50
Averages							70.3	2.29
WEST VIRGINIA.								
Romney	Hampshire	W. H. McDowell	19	94	.....	.....	.....	.....
Weston	Lewis	Benjamin Owen	15	93	12	55	71.5	.....
Averages							71.5	.....
NORTH CAROLINA.								
Kenansville	Duplin	Prof. N. B. Webster	17, 19, 20	96	11	62	78.3	7.38
Goldsboro'	Wayne	E. W. Adams, A. M.	21	96	11	62	76.5	4.15
Raleigh	Wake	Rev. F. P. Brewer	20	98	11	59	75.9	1.95

Table showing the range of the thermometer, &c., for June—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
N. CAROLINA—Con.				°		°	°	*In.*
Oxford	Granville	W. R. Hicks, M. D.	19, 20	88	4, 10, 11	58	73.0	3.90
Albemarle	Stanley	F. J. Kron	30	98	1, 12, 13	54	73.3	2.26
Statesville	Iredell	Thos. A. Alison	29	90	12	50	70.3	1.25
Asheville	Buncombe	E. I. Aston	19	86	27	57	68.9	.....
Averages							73.7	3.48
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	17, 20	92	1	63	74.1	2.46
Gowdysville	Union	Charles Petty	6	89	4, 10	62	74.7	.....
Averages							74.4	2.46
GEORGIA.								
Atlanta	Fulton	F. Deckner & Son	19	90	23	58	72.6	0.50
Summerville	Richmond	Dr. S. E. Habersham	18, 19	94	10	67	78.4	1.18
Averages							75.5	0.84
ALABAMA.								
Opelika	Lee	J. H. Shields	13	97	22	67	80.4	0.25
Carlowville	Dallas	H. L. Alison, M. D.	2	96	26	70	81.2	2.70
Moulton	Lawrence	Thos. M. Peters, A. M.	19	91	23	54	75.0	0.45
Greene Springs	Hale	H. Tutwiler	29	94	9, 23	60	78.4	0.88
Havana	..do	S. K. Jennings, M. D.	18, 29, 30	92	23	63	76.7	0.67
Averages							78.3	0.99
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	18	95	9, 10, 11	70	79.8	12.40
TEXAS.								
Gilmer	Upshur	J. M. Glasco	6	98	9	65	80.4	4.03
Houston	Harris	Miss E. Baxter	13, 14	85	4, 6, 8, 9, 10, 15, 20, 22, 23, 24, 25, 27, 29, 30	74	77.3	.....
Columbia	Brazoria	Hennell Stevens	8, 16	96	10	71	81.0	2.40
Austin	Travis	J. Van Nostrand	18, 19	95	24	72	82.5	0.69
Averages							80.3	2.37
LOUISIANA.								
Benton	Bossiere	J. H. Carter	3, 12, 19	91	22	68	81.4	.....
New Orleans	Orleans	Robt. W. Foster	11, 12, 29	92	22, 25	79	.....	.....
MISSISSIPPI.								
Grenada	Yalabusha	Albert Moore	15, 29	92	22	57	77.6	.....
Brookhaven	Lawrence	T. J. R. Keenan	29	98	23	64	79.4	.....
Natchez	Adams	Wm. McCary	15, 30	88	12	67	78.8	1.57
Averages							78.6	1.57
KENTUCKY.								
Chilesburg	Fayette	Sam'l D. Martin	15	92	10	48	70.0	6.31
Lexington	....do	S. R. Williams	15	87	10	50	70.7	6.13
Louisville	Jefferson	Mrs. L. Young	15	93	10, 11, 12	50	71.0	5.98
Clinton	Hickman	Rev. T. H. Cleland	16, 18, 19	92	22, 23	59	74.5	1.70
Averages							71.6	5.04

Table showing the range of the thermometer, &c., for June—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
TENNESSEE.				°		°	°	*In.*
Elizabethton	Carter	Charles H. Lewis	14, 16, 29	92	11, 12	52	70.9	.....
Tusculum College	Green	S. S. and Rev. W. S. Doak.	12, 13, 16, 28	95	1, 12	59	73.1	.....
Lookout Mountain	Hamilton	Rev. C.F.P. Bancroft	19	92	21	56	72.3	.....
Austin	Wilson	P. B. Calhoun	16, 17, 18, 29	94	23, 24	56	75.5	1.20
Clarksville	Montgomery	Prof.W.M. Stewart	19	91	22	58	71.9	1.92
Memphis	Shelby	Edw. Goldsmith	19	97	22, 23	64	79.1	1.53
Averages							73.8	1.55
OHIO.								
New Lisbon	Columbiana	J. F. Benner	18	94	9	50	69.8	1.81
Milnersville	Guernsey	Rev. D. Thompson	29	91	12	43	69.6	1.73
Wooster	Wayne	Martin Winger	18, 19	92	9	50	71.9	.....
Gallipolis	Gallia	Alex. P. Rodgers	19	90	10	52	68.2	2.65
Kelley's Island	Erie	Geo. C. Huntington	18	89	7	52	68.2	5.98
Sandusky	....do	Thomas Neill	19	87	10	51	68.5	13.47
Norwalk	Huron	Rev. A. Newton	19	90	7	50	66.9	3.82
North Fairfield	....do	O. Burras	19	87	10, 11	45	73.9	2.68
Westerville	Franklin	Prof. Jno. Haywood	19	91	9	50	.....	.....
Marion	Marion	H. A. True, M. D	19	89	7, 9	51	67.8	3.14
Hillsboro'	Highland	J. McD. Mathews	15	87	10	49	69.0	4.20
Toledo	Lucas	J. B. Trembly, M. D.	18	91	7	50	68.1	8.19
Bowling Green	Wood	John Clarke	5, 14, 30	93	10	53	70.6	5.76
Kenton	Hardin	C. H. Smith, M. D	30	94	11	45	69.0	7.41
Urbana University	Champaign	M. G. Williams	14, 15, 19	88	9	54	69.6	10.38
Bethel	Clermont	Geo. W. Crane	15	92	9	50	67.8	3.50
Cincinnati	Hamilton	Geo. W. Harper	29	89	10	45	71.2	5.60
Do	....do	R. C. Phillips	14	92	10	58	74.6	7.26
College Hill	....do	John W. Hammitt	15	91	10	50	70.6	7.13
Averages							69.7	5.57
MICHIGAN.								
Monroe City	Monroe	Miss F. Whelpley	14	90	23	40	69.2	7.92
Litchfield	Hillsdale	R. Bullard	30	92	9	48	68.4	5.23
Northport	Leelenaw	Rev. Geo. N. Smith	29, 30	85	6, 8	40	61.4	.....
Holland	Ottawa	L. H. Streng	14	90	9	48	66.4	2.61
Otsego	Allegan	Milton Chase, M.D	14, 30	84	9, 10, 22	42	53.9	.....
Copper Falls	Keweenaw	Dr. S. H.Whittlesey	17	82	5	32	57.0	2.10
Ontonagon	Ontonagon	Edwin Ellis, M. D	30	84	1	38	59.5	.....
Averages							62.3	4.47
INDIANA.								
Vevay	Switzerland	Chas. G. Boerner	28	97	10, 22	60	76.9	4.95
Muncie	Delaware	G.W.H.Kemper, M.D	30	93	10	47	70.5	4.30
Spiceland	Henry	Wm. Dawson	15, 30	91	21	50	71.0	5.00
Columbia City	Whitley	Dr.F. and Miss L. McCoy.	16	94	21	52	73.6	6.50
Indianapolis	Marion	W. J. Elstun, M. D	15	90	9, 10	54	67.4	2.09
State University	Monroe	Prof. C. M. Dodd	17	90	7, 21, 22	57	71.6	2.91
Rensselaer	Jasper	Dr. J. H. Loughridge	17, 18, 19, 30	94	6, 21	48	70.6	1.75
Merom	Sullivan	Thomas Holmes	30	94	7	54	74.2	3.00
New Harmony	Posey	John Chappellsmith	17	94	7, 21	60	75.2	1.79
Jalapa	Grant	Albert C. Irwin	18	93	10	52	67.4	2.13
Averages							71.8	3.44

Table showing the range of the thermometer, &c., for June—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ILLINOIS.				°		°	°	*In.*
Chicago	Cook	J. G. Langguth, jr.	30	90	21	50	66.3	3.11
Near Chicago	....do	Samuel Brookes	14	102	21, 22	46	67.3	.....
Ridge Farm	Vermillion	B. C. Williams, M. D.	17, 18	94	6, 7, 11	52	70.8	2.40
Marengo	McHenry	O. P. Rogers	30	92	6	46	.....	9.17
Golconda	Pope	Wm. V. Eldredge	16	104	24	56	78.7	1.30
Aurora	Kane	A. & E. D. Spaulding	18, 30	90	8	47	70.3	3.00
Sandwich	De Kalb	N. E. Ballou, M. D	14, 30	96	8	48	70.4	1.47
Ottawa	La Salle	Mrs. E. H. Merwin	29, 30	99	6, 8	51	70.0	.....
Rochelle	Ogle	Daniel Carey	14, 30	93	8	50	68.5	.....
South Pass	Union	H. C. Freeman	16, 19	97	22	55	75.5	.....
Wyanet	Bureau	E. S. & Miss Phelps	17	93	22	47	70.3	2.41
Tiskilwa	....do	Verry Aldrich	17	99	22	48	69.1	.....
Hennepin	Putnam	Smiley Shepherd	17	95	22	44	68.0	.....
Elmira	Stark	O. A. Blanchard	16, 17	94	21	52	71.8	2.10
Peoria	Peoria	Frederick Brendel	18	97	21	55	72.7	1.43
Springfield	Sangamon	G. M. Brinkerhoff	30	94	22	52	70.4	.....
Dubois	Washington	Wm. C. Spencer	18	92	8	42	68.6	3.23
Waterloo	Monroe	H. Künster	17	98	22	56	78.0	.....
Galesburg	Knox	Prof. W. Livingston	18	92	9	56	71.0	1.22
Manchester	Scott	Dr. J. & C. W. Grant	18, 30	93	9	55	73.1	3.22
Mount Sterling	Brown	Rev. A. Duncan	27	97	21	54	75.6	.....
Andalusia	Rock Island	E. H. Bowman, M. D	30	95	22	48	70.4	.....
Augusta	Hancock	S. B. Mead, M. D	18, 30	88	9	57	74.3	2.04
Belvidere	Boone	G. B. Moss	30	90	8, 9	50	67.0	.....
Averages							71.2	2.78
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	18	85	8	43	62.7	7.20
Plymouth	Sheboygan	G. Moeller	30	93	6	42	65.0	5.90
Milwaukee	Milwaukee	I. A. Lapham, LL.D	18, 29	90	7	39	62.4	5.78
Geneva	Walworth	Wm. H. Whiting	30	95	9	46	67.4	3.62
Waupacca	Waupacca	H. C. Mead	30	95	1, 2, 3	45	68.9	.....
Embarrass	....do	E. Everett Breed	30	90	1	47	66.9	3.75
Rocky Run	Columbia	W. W. Curtis	30	90	1	50	67.7	3.56
Edgerton	Rock	Henry J. Shints	30	100	3	49	68.4	11.33
Baraboo	Sauk	M. C. Wait	30	96	3	48	68.7	4.13
New Lisbon	Juneau	J. L. Dungan	30	96	9	48	69.4	.....
Bayfield	La Pointe	Andrew Tate	30	98	8	42	61.2	.....
Averages							66.2	5.66
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	30	94	8	48	67.6	2.68
Minneapolis	Hennepin	Wm. Cheney	28	96	8	47	68.0	4.23
Sibley	Sibley	C. W. & C. E. Woodbury.	17	92	9	43	68.2	4.34
New Ulm	Brown	Charles Roos	30	95	8, 21	52	70.1	2.50
Danville	Blue Earth	T. A. Kellett	30	92	8, 20	48	67.8	.....
Averages							68.3	3.44
IOWA.								
Clinton	Clinton	Dr. J. P. Farnsworth	16, 30	95	22	52	70.9	5.60
Davenport	Scott	D. S. Sheldon	30	90	3	54	70.2	4.85
Dubuque	Dubuque	Asa Horr, M. D	30	95	3, 9, 20, 21	54	69.4	6.03

Table showing the range of the thermometer, &c., for June—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
IOWA—Continued.				°		°	°	*In.*
Monticello	Jones	M. M. Moulton	16, 17	91	22	53	69.6	3.75
Guttenberg	Clayton	Jas. P. Dickerson	30	98	9	44	66.3	.....
Iowa City	Johnson	Prof. Theo. S. Parvin.	17, 18	92	22	47	70.8	1.28
Independence	Buchanan	Geo. Warne, M. D	30	95	21	53	70.1	2.90
(Near) Independence	....do	Mrs. D. B. Wheaton	17	100	21	47	74.9	4.10
Waterloo	Black Hawk	T. Steed	30	96	20, 21	50	67.4	.....
Algona	Kossuth	Ph. Dorweiler	16, 30	92	20	48	69.0	.....
Do	....do	James H. Warren	30	90	21	47	67.3	.....
Fort Dodge	Webster	C. N. Jorgensen	30	98	21	51	71.2	4.14
Boonesboro'	Boone	E. Babcock	13, 17	95	20, 21	50	67.0	2.77
Rolfe	Pocahontas	Oscar I. Strong	30	95	20	50	71.4	4.96
Fontanelle	Adair	A. F. Bryant	30	96	8, 20, 21	54	72.8	7.50
Logan	Harrison	Jacob F. Stern	17	90	21	45	68.2	6.90
Woodbine	....do	David R. Witter	30	94	21	53	71.3	.....
Averages							69.9	4.57
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	17	95	21	57	74.5	1.46
Allenton	....do	A. Fendler	17	101	11	50	71.9	1.67
Hematite	Jefferson	John M. Smith	18	96	10	47	73.6	4.80
Canton	Lewis	George P. Ray	30	95	22	44	72.2	2.32
Rolla	Phelps	Homer Ruggles	17	93	22	44	70.3	3.25
Jefferson City	Cole	Nicolas De Wyl	17, 18	94	22	56	74.0	.....
Hermitage	Hickory	Miss Belle Moore	30	99	21	51	75.8	1.47
Harrisonville	Cass	John Christian	16, 17, 18, 30	94	6, 9, 20	58	74.1	3.93
Oregon	Holt	William Kaucher	30	96	9	55	73.9	3.51
Averages							73.4	2.80
KANSAS.								
Leavenworth	Leavenworth	J. Stayman, M. D	18	102	22	42	73.1	4.25
Olathe	Johnson	Wm. Beckwith	28, 29	98	20	55	74.8	5.80
Baxter Springs	Cherokee	Ingraham & Hyland	28	103	21	56	80.3	0.90
Atchison	Atchison	Dr. H. B. & Miss Horn	18	100	23	53	74.7	5.40
Holton	Jackson	Dr. James Watters	18	102	9, 20	56	77.4	.....
State Agricult'l Coll.	Riley	Prof. B. F. Mudge	16	97	21	53	74.3	3.48
Council Grove	Morris	A. Woodworth, M.D.	18	99	22	54	77.7	2.90
Averages							76.0	3.79
NEBRASKA.								
Elkhorn	Washington	John S. Bowen	18	93	9	54	71.2	.....
De Soto	....do	Charles Seltz	30	93	9	51	72.2	4.13
Bellevue	Sarpy	Mrs. E. E. Caldwell	27	94	9	54	74.6	.....
Glendale	Cass	Dr. A. L. & Miss Child	18, 30	92	9	51	72.0	5.00
Omaha Agency	(Reserve)	Rev. Wm. Hamilton	30	92	10	50	72.7	2.25
Averages							72.5	3.79
UTAH TERRITORY.								
Great Salt Lake City	Great Salt Lake	W. W. Phelps	22	90	4	45	66.3	4.00
Wanship	Summit	Thos. Bullock	30	95	24, 25	44	63.1	.....
Averages							64.7	4.00
CALIFORNIA.								
San Francisco	San Francisco	W. O. Ayres, M. D	25	71	18, 19	50	56.1	0.38

NOTES ON THE CROPS, WEATHER, &c., JUNE, 1863.

[Compiled in the Department of Agriculture, from the reports of observers for the Smithsonian Institution.]

Steuben, Me.—First partially clear sunrise on 1st, since May 13; and on 25th, first entirely clear sunrise since May 4. Frost on 4th.

West Waterville, Me.—Apples blossom 2d to 9th. Crops look well, but hoed crops are backward.

Gardiner, Me.—Mean temperature of June $1\frac{1}{3}^{\circ}$ colder then in 32 years.

Lisbon, Me.—Much fog and mist during the month.

Standish, Me.—Wild red cherry in blossom, 3d; Kent cherry and pear, 4th; lilac, 8th.

Norway, Me.—Month remarkable for much dull weather and absence of winds. Potatoes rotted in the ground up to 5th.

Cornishville, Me.—Hay harvest commenced 29th; crop abundant. Apples scarce and rose bugs making them scarcer.

Goffstown Centre, N. H.—Temperature of June very equable—good for farm work. Crops look well, but fruit is badly blighted.

Woodstock, Vt.—Slight frost on 3d, followed by a tornado, with thunder, which prostrated fences, trees, and even stone walls.

Middlebury, Vt.—Frost on the 10th.

Kingston, Mass.—Apple in full bloom, 6th; about a week later than last year.

Billerica, Mass.—Apples blossom 1st to 3d. Corn planting 8th to 19th.

New Bedford, Mass.—Lilac in full flower, 3d; liburnum, 19th; roses 20th.

Lunenburg, Mass.—So wet that corn-planting was not completed till the 15th; potatoes some days later.

Richmond, Mass.—Slight frost, 10th. Heaviest rain for many years, 16th.

Newport, R. I.—Dense fogs from 5th to 9th; apparently exhalations from the soaked soil.

Columbia, Conn.—June wet and cloudy, retarding farm work, but went out with fair weather.

Waterbury, Conn.—Quinces flowered on 6th; strawberries ripen on 10th, same day last year; Syringa and Antwerp raspberries in flower on 15th.

South Hartford, N. Y.—First part of June cool; since warm, and now crops need rain.

Garrisons, N. Y.—First part of June very wet, and hindered planting, but now grass and grain never looked better.

North Hammond, N. Y.—June closes warm and dry.

South Trenton, N. Y.—White frost on 10th, but no injury.

Palermo, N. Y.—Slight frosts, 2d and 3d. Lilac blossoms 3d; locust trees 16th. Thunder on 4th, 5th, 15th, 16th, 17th, 23d, 24th, 27th, and 30th.

Nichols, N. Y.—Many farmers planted corn from 2d to 6th. Very warm from 13th to 20th, and three or four severer thunder-storms than usual.

Newark Valley, N. Y.—Crops looking well; corn rather backward. Haying begun.

Buffalo, N. Y.—Ontario and Isabella grape blossomed, 25th; 30 days from opening leaf. Strawberries ripe, 22d; 33 days from blossom. Haying began 30th; crop heavy.

Newark, N. J.—Mean temperature of June nearly 2° below the preceding 25; rain fell nearly 2.5 inches greater than in the same 25 Junes.

Elwood, N. J.—First ripe (Metcalf's early) strawberry of 47 varieties, on May 31st. Cut clover for hay, 6th. On 30th, ground dry but vegetation growing finely.

Dover, N. J.—Fruit badly affected by wet and want of sunshine. Bees did not swarm in season, having lost the spring flowers and the "shining hour."

Greenwich, N. J.—Mornings generally cool, and many cool evenings. Strawberries ripe on 6th. Haying on and after 17th.

Vineland, N. J.—Strawberries ripe on 5th. Month well suited for vegetation, though a few days later than last year.

Nyces, Pa.—Thunder storms on 1st, 6th, 18th, 19th, and 24th.

Horsham, Pa.—Early part of June was wet; since then warmer and drier.

Dyberry, Pa.—Slight frosts, 3d and 10th. Thunder-showers, 6th, 15th, 16th, 18th and 20th.

Factoryville, Pa.—Coolest June in four years.

Ickesburg, Pa.—Seventeen-year Cicadas coming up in great numbers about 5th.

Tioga, Pa.—Warmest June in twelve years; the 18th was the warmest June day on record in this county, 101° in shade, 122° in the sun, mean of the day 84°. The whole month was favorable for crops.

Johnstown, Pa.—May apple in full bloom on 2d; locust trees, 11th.

West Chester, Pa.—*Cicada Septendecim* (17-year locust) appearing in great numbers, 3d. Farmers haying, 22d.

Fountain Dale, Pa.—First ripe (wild) strawberries, 7th. Seventeen-year locusts appear, on 7th. Hogs that fed wholly on them, before they came out of the ground, died of constipation produced by their astringency. The excessive humidity of the air caused red (afterwards black) rust on wheat, and a white or yellowish mildew on young catawba grapes; the leaf not mildewed.

Grampian Hills, Pa.—Month mainly favorable; grass and wheat, corn, oats, and potatoes looking well, and fruit a fair crop.

Woodlawn, Md.—The 17-year Cicada appearing, 2d; greatest number, 12th; by close of June, nearly disappeared, leaving many twigs dead on the chestnut, oak and locust.

Emmittsburg, Md.—The 17-year locust began appearing before May 21st, but died, unable to burst their casings on account of wet and cold. The greater portion came up early in June, and females deposited their eggs about the second week, and are now dying, leaving everywhere dead twigs filled with the future brood.

Surry, C. H., Va.—June showery and warm, with several hard rains and much sharp thunder; more than half the month was cloudy.

Wytheville, Va.—Harvest began on 29th; wheat good, oats look well; corn needs rain.

Kenansville, N. C.—Freshets in eastern counties have damaged crops on low grounds.

Oxford, N. C.—Wheat harvest progressing on 18th, a fair crop; corn very promising on 30th.

Albemarle, N. C.—A dry month, crops drying up.

Gowdysville, S. C.—Severe hail, wind and rain on 7th, swept the northwest corner of this county, beating down wheat and corn, ruining cotton, damaging houses, fences, &c.

Atlanta, Ga.—The 13-year locust appeared in May and disappeared the first week in June.

Moulton, Ala.—Month very dry, nights cool, noons hot, and where rains occurred they were partial. Prevailing winds were from northern points.

Greene Spring, Ala.—Month very dry, corn suffering, cotton looking well and remarkably clean, freedmen working well.

Havana, Ala.—Thunder, or lightning, or both, on 3d, 6th, 7th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, and 30th. Heard katy-dids on 22d.

Jacksonville, Fla.—Thunder on ten days; amount of rain double usual, and yet sometimes vegetation suffered from drouth. Crops all promising, and quantities of cucumbers, melons, &c, have been shipped north.

Houston, Texas.—The sun rose and set clear on 3d and from 5th to 18th, and from 24th to 28th, both inclusive.

New Orleans, La.—Hottest day, 28th. The western and northern winds bring heat; northeast and southeast winds are refreshing. Much dry weather in June.

Grenada, Miss.—Month unusually cool, with but little rain; cotton backward, but improving; sweet potatoes dying out with drought.

Brookhaven, Miss.—Dry and hot from 1st to 15th, and after 21st, dry and hot again in some places, putting corn past help; cotton promises well, though in some swamp lands a new worm is destroying it; much rice was planted on new uplands, and is doing well; fruits poor. Heard first katy-did (*Platyphylium concavum*) on the 14th.

Elizabethton, Tenn.—Harvest commenced 22d; wheat and rye more than average yield.

Clarksville, Tenn.—Since the 3d no rain to wet the ground half an inch deep.

Memphis, Tenn.—New June apples, cherries, plums, and peaches on 7th; squashes, 14th; cucumbers, 20th; crops promise well, but need rain.

Lexington, Ky.—Heavy rains 16th to 20th; violent thunder-storms 25th to 27th; destructive hail-storm on 25th, injuring crops and killing pigs, poultry, &c., in Fayette, Woodford, Scott, and Bourbon counties.

New Lisbon, Ohio.—White frost on 10th; wheat midge at work, 12th. Bees killing the drones. Are we to have no swarms? Crops in prosperous condition, though wheat will be damaged some.

Kelley's Island, Ohio.—Isabella grapes blossom, 25th; Catawbas, 27th.

Norwalk, Ohio.—Slight frost 10th; thunder-storms from northwest on 5th, 15th, 19th, and 30th; tornado on 5th, from northwest, doing considerable damage.

Bowling Green, Ohio.—From 6th to 30th dry; wheat doing well; oats, flax, and barley in good condition; grass abundant; corn injured by worms, but now growing finely; potato bugs prospering, and grasshoppers hatching out.

Kenton, Ohio.—On 6th most violent thunder-storm for years, from southwest, with hail; from 15th to 17th, inclusive, frequent thunder-storms, with fierce lightning, terrific thunder, and sudden and violent changes of wind.

Urbana, Ohio.—From 15th to 18th a succession of terrific thunder-storms; in the first 24 hours 7⅛ inches of rain fell, but the heavy, continued thunder was yet more remarkable. The 17-year cicada appeared about the 1st, deposited eggs about 15th; by 30th had nearly disappeared.

Bethel, Ohio.—Great rains, with much thunder, 17th and 18th.

Hillsboro', Ohio.—Rains, with thunder, 16th to 20th. A few 17-year locusts, much fewer than in 1851.

Cincinnati, Ohio.—Very heavy thunder-storm on night of 17th and 18th. More than a dozen places in the city were struck, causing two large fires.—HARPER. The amount, brilliancy, and constant play of electricity exceeded any I ever witnessed.—PHILLIPS.

College Hill, Ohio.—Thunder-storm on night of 17th and 18th, attended with hail and incessant lightning; rain-fall in 24 hours, 5.75 inches.

Toledo, Ohio.—Rain on 14 days; severe showers on 5th, 6th, 19th, 29th, and 30th, the last two days with vivid white lightning, incessant thunder, and great rainfall. Saw the 17-year locust first on 19th—their ninth recorded appearance; the first was in 1715, the last 1851.

Monroe City, Mich.—Terrific thunder and lightning on 5th, 18th, and 19th; deluges of rain 29th and 30th.

Litchfield, Mich.—Severe thunder-storm and gale on 16th, prostrating trees, unroofing buildings, &c. All crops promising; wheat filling finely.

Northport, Mich.—Latest frost on 9th; June favorable to crops. Some

grain and grass were injured by drought in May, but generally grain and fruit promise well.

Otsego, Mich.—Harvest about a week later than usual. Heavy thunder 3d, 5th, and 15th; great rain-falls 5th and 6th; violent wind 16th and 19th.

Copper Falls, Mich.—May and June unusually warm, and, until 29th June, very dry. Storms 29th and 30th, with much lightning and thunder.

Veray, Ind.—Thunder-storms on 2d, 16th, 17th, 18th, 19th, 24th, and 25th—some very severe. Locusts (17-year) appeared in small numbers. Harvest commenced; crop above expectation.

Muncie, Ind.—Light frosts 9th and 10th; on 17th sheet lightning in northeast, with continuous rolling thunder—one prolonged peal for over 20 minutes. The red-eyed or 17-year locusts appeared in great numbers about the 1st; have now nearly disappeared.

Rensselaer, Ind.—June dry and moderately warm. Crops never looked better.

Jalapa, Ind.—On 15th grand electric display in south and southeast; lightning diffuse, but out from the pale light balls of fire shot across the heavens, generally bursting into numerous spicula, resembling serpents.

Ridge Farm, Ill.—Rye harvest 26th; cherries ripe, and potatoes and spring wheat in bloom.

Hennepin, Ill.—First week misty, then fair and warm to 17th; 19th and 20th, rain; then to close, favorable crops; a full harvest. Fruits poor, except grapes, which promise full crops.

Mt. Sterling, Ill.—First part of June wet; latter part dry. Wheat seldom better; corn backward, but thrifty.

Belvidere, Ill.—Month very favorable for wheat and corn, but not for grass.

Marengo, Ill.—Very severe thunder-storm on 15th; lightning killed several persons in this county. The thunder was a continuous roar, and the rain-fall six inches in four hours.

Manitowoc, Wis.—Hoar frost 7th; thunder-storms 4th, 5th, 13th, 14th, 16th, 17th, and 30th; fog 4th, 13th, 14th, 15th, 27th, 28th, 30th; hail 14th.

Plymouth, Wis.—Just rain enough at proper times to make everything grow finely.

Milwaukee, Wis.—Heavy rains 15th and 16th; on 15th overflowed the gauge; on 16th over an inch fell in 30 minutes.

Bloomfield, Wis.—A new potato bug—slender, three-fourths of an inch long, slate color, winged, flies fast and quick—covers the vines and consumes the leaves rapidly; in some gardens ate the young bean plants.

Rocky Run, Wis.—The dry May and drought late in June has affected the straw crops.

Baraboo, Wis.—Growth of crops equal to 1860; never looked better; hops ahead of last season, and more than double the area planted; fear there will not be pickers enough to secure them.

St. Paul, Minn.—Except the heat of the last five days, June pleasant; rains moderate and in season to supply the crops, which surpass all ever seen here, and are in advance of sections 2 and 3°, further south, by from 10 to 14 days.

Minneapolis, Minn.—Slight frosts 8th and 20th; strawberries ripe 7th. A pleasant month and splendid crops.

Sibley, Minn.—Slight frosts on mornings of 9th and 21st.

Clinton, Iowa.—The first week wet; the rest of June dry and warm. Crops never looked better, and fruit is abundant.

Monticello, Iowa.—Vegetation a week earlier than last year, and hops two weeks; all looking well.

Guttenberg, Iowa.—Grass the same as last year. Spring wheat and oats 10 per cent., and corn 20 per cent. better.

Near Independence, Iowa.—Heavy dews nearly every night in June; otherwise a dry month. Streams low, and many wells dry.

Independence, Iowa.—Wigelia, (yellow) rose, and snowball in bloom 1st; raspberries ripe and strawberries nearly over, 30th.

Algona, Iowa.—Fairest prospect of heavy crops ever known here; no grasshoppers; potato bugs doing but little damage. On 30th, grasshoppers seen flying from S. E. to N. W.; a few alighted, and "fell to" on blades and heads of small grain. On their wings were bright red insects, (lice,) about the size of a pin's head. This section will probably be their "Egypt" next year.

Fort Dodge, Iowa.—Grasshoppers' eggs laid last fall began to hatch in April, when first broods were frozen, and continued until in June. When full grown they shed their coats, and came out with wings full size. On 17th they commenced migrating, flying with the wind; the air is now full of them, going north and northwest. They have done much damage in this county; wheat will hardly yield seed; oats a little more; garden vegetables entirely destroyed; corn but little damaged, and may be spared, as over three-fourths have left us, and the rest are going as fast as they get their wings uncased.

Boonsboro', Iowa.—[An account of grasshoppers and damages like the above.] Herd's-grass is entirely stripped; pea vines escape, but currants and gooseberries are leafless. If grain can mature on a leafless stalk, about half a crop may be reaped.

Rolfe, Iowa.—Grasshoppers commenced flying away 22d, and myriads are now going north with the wind.

Fontanelle, Iowa.—Wheat partly eaten up and corn injured by grasshoppers, now in myriads high in air, flying northward.

Logan, Iowa.—[Same sad story of the ravagers.] Some farmers plowed under their ruined wheat the last week in June, and planted corn, hoping for something of a crop.

Woodbine, Iowa.—A favorable month; potatoes and corn look well, considering the grasshoppers, now nearly gone. Of wheat, farmers, on an average, will get their seed.

Allentown, Mo.—Great numbers of the 17-year locusts appeared after May 22, and after depositing their eggs, (and thus destroying tender twigs of trees and shrubs, especially pear and apple,) disappeared by the 28th June.

Hematite, Mo.—There are two distinct kinds or varieties of 17-year locusts—one species about twice the size of the other, (male and female,) and differing greatly, also, in their cries and actions.

Jefferson City, Mo.—Wheat harvested July 9; a middling crop, suffered from rust; hay light; corn needs rain; apples few; peach crop medium; grapes promising, and no rot yet.

Hermitage, Mo.—Month remarkable for small amount of rain, and extreme drought in latter part, and great change from high temperature on 18th to low on 21st, without apparent cause.

Oregon, Mo.—Harvest commenced 29th; grasshoppers gone north, 30th; damage to crops slight this year.

Holton, Kan.—Crops never promised greater yield per acre, and of potatoes, oats, wheat, corn, a double area was planted. Fruits the same; grapes splendid, and hops flourishing.

Council Grove, Kan.—First attacks of potato bug on 13th; subdued mostly by gathering and burning.

Baxter Springs, Kan.—Very dry on Cherokee neutral and Osage Indian lands, also in southwestern Missouri. Wheat good in quality, but thin on ground; probably 15 bushels per acre. Corn, vegetables, and grass almost a failure; oats medium.

Elkhorn, Neb.—Wild raspberries ripe, 1st; strawberries, 13th; red Dutch currants, 27th. Season thus far sufficiently moist. Small grains, where not

injured by grasshoppers, promising, and some ready for harvest. Corn looks well; grass is abundant; potatoes growing finely, and but few bugs seen.

De Soto, Neb.—Grasshoppers left about the 15th; air full of them. Crops look fine.

Glendale, Neb.—A remarkably favorable month. The grasshoppers, now nearly all gone, nearly devastated some farms, while others, alongside, are unharmed. The wheat crop of this (Cass) county is damaged about 20 per cent.; but as nearly double the area was sown there will still be a large crop, unless the "hoppers" drop down on us in their flight from some other quarter.

Great Salt Lake City, Utah.—But one hail-storm in June. Agricultural prospects good.

Wanship, Utah.—Frosts and freezing 1st, 2d, 6th; snows, 1st, 4th, and 25th. Garden fences covered and air filled with locusts (commonly, "hoppers") 27th to 30th; have destroyed all the grain, much of the grass, and some *thrice*-planted gardens.

Harrisburg, Utah.—Light frost 1st, 5th, and 15th; high winds, damaging fruit and trees, 1st, 3d, 5th, 14th. After 15th much hot and dry weather, with cool nights. Began to cut wheat, which will average 30 bushels to the acre; think winter wheat and rye would do well here. The country is fast filling up, means for irrigating the land increasing, and fruit culture on the increase, especially the grape. Fruit is fine and abundant.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

AUGUST AND SEPTEMBER,

1868.

WASHINGTON:
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1868.

MONTHLY REPORT.

WASHINGTON, D. C., *September* 19, 1868.

SIR: I herewith respectfully submit for publication, as a report for the months of August and September, a statement of the condition of the crops, from the returns of the circulars for the months named, with extracts from correspondence; also brief articles upon the Spanish fever; diseases among horses and mules; experiments with the potato bug; pisciculture; Scuppernong wine; agricultural resources of San Joaquin county, California; the cotton trade of 1868; premiums for wheat-growers; international exchanges; sheep farming in Turkey; American dairymen in Switzerland; and tables and notes upon meteorology for the months of July and August.

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON, *Commissioner.*

CONDITION OF THE CROPS FOR AUGUST AND SEPTEMBER.

WHEAT.—The correspondence of August and September has been very voluminous and indefinite concerning wheat, furnishing numerous and contradictory elements in a calculation of quantity. Statements of disappointed expectations in threshing are sufficiently abundant in the south, in Wisconsin and other parts of the west, to furnish themes for agricultural croakers; a little rust here and there, the chinch bug, and other causes of failure are found; the grasshopper at certain points in the distant west has been a burden to wheat-growers. On the other hand, cases are mentioned of a three-fold acreage with half an average yield, giving a fifty per cent. aggregate increase notwithstanding the loss; numerous returns declare the present the largest crop in many years; and the majority, in view of the general increase in acreage, show a better result than that of last year, after accounting for losses in the yield. It may be stated, however, that the average yield per acre of the whole country is scarcely equal to that of 1867, but the increased area sown will secure an aggregate somewhat larger than the product of that year.

The States indicating a decreased product are as follows, 10 representing an average yield: New Hampshire, 9.8; Connecticut, 9.6; North Carolina, 9.4; South Carolina, 8.9; Georgia, 8.3; Alabama, 8.4; Texas, 6.6; Wisconsin, 9.8.

Other States give an increase: Maine, 10.8; Vermont, 10.9; Massachusetts, 10.6; New York, 10.3; New Jersey, 10.1; Pennsylvania, 10.3; Delaware, 10.5; Maryland, 10.2; Virginia, 10.5; Mississippi, 12.5; Louisiana, 11; Arkansas, 12; Tennessee, 10.7; West Virginia, 11.8; Kentucky, 11; Missouri, 13 5; Illinois, 10.4; Indiana, 11; Ohio, 10.8; Michigan, 10.6; Minnesota, 12.5; Iowa, 10.6; Kansas, 11.5; Nebraska, 12.5.

The September reports of condition when harvested represent the following States below the average: Maine, 9.5; New Hampshire, 9.5; New Jersey, 9.3; Delaware, 7; Virginia, 8; North Carolina, 7.5; South Carolina, 8.3; Georgia, 7.3; Alabama, 8; Mississippi, 8.8; Texas, 4.8; Arkansas, 9.1; Tennessee, 9.1; Kentucky, 8.6; Illinois, 9.2; Wisconsin, 9.8; Iowa, 9.5; Nebraska, 9.8; and the following up to or above the average: Vermont, 10.5; Massachusetts, 10;

New York, 10.3; Pennsylvania, 10.4; Maryland, 10.1; West Virginia, 10.1; Missouri, 10.6; Indiana, 10.6; Ohio, 10; Michigan, 10.5; Minnesota, 11.4; Kansas, 10.8.

A study of the accompanying tables, in connection with the extracts from notes of statistical observers, which follow, will reveal in a large measure the peculiarity of the present wheat crop of the United States.

Lehigh county, Pennsylvania.—The yield of wheat is considerably below what was anticipated. The fields had a fine appearance all summer, but when ripening a large number of the heads remained erect; many were half filled, some less, and others more. In some cases the straw was clean and bright yellow; in others it appeared as if attacked by mildew; but this was not the case, for of the late heads which came up along the fences, the straw remained bright, the heads large and well-filled with plump kernels; nor could it have been occasioned by the weevil, for not enough could be found in the heads to do all the injury. The heads shrivelled and dried up before the stalks were ripe.

Newcastle county, Delaware.—There is much disappointment in the wheat crop. Early in the season a large product was expected. It came out of the winter well, and the plant produced a superabundance of straw. The spring was cold and wet, and long-continued, and when the weather cleared it became very warm, with hot sun, giving but a short period for the maturing of the ear, which is short, but the grain is better than last year, suffering little from insects or rust. Upon the whole, quantity and quality considered, the crop may be set down at twenty per cent. better than last year.

King George county, Virginia.—The yield of wheat has disappointed farmers. Threshing shows the product to be one-fourth less than that of last year. The greatest failure is in the white, smooth-head varieties. The red bearded has been the most productive, but the heads were far from full. This result disheartens the farmers; the more because they cannot discover the cause of failure. Fallows have failed as well as the corn-land wheat; fertilizers have not enlarged the crop to a great extent, and in some instances have produced no decided effect.

Nelson county, Virginia.—The wheat crop of Nelson was unusually promising until a short time before harvesting, when, from excessive wet, it showed signs of rust. This is proving to be much more damaging since threshing has commenced than had been anticipated.

Sussex county, Virginia.—Most of the wheat crop has been threshed, and the yield is not more than two-thirds the anticipated crop; quality average, and yield of straw enormous.

Chowan county, North Carolina.—The wheat crop of 1867 was a failure, and the present year there is not half the quantity raised. In many instances the farmers failed to get back the amount sown upon the land.

Macon county, North Carolina.—Wheat yields less per acre than last year, but the deficiency is probably made up by the increased acreage.

Prairie county, Arkansas.—Have the best crops here we have had since 1862, which was the best crop year ever known in the county.

Fayette county, Tennessee.—Never was there such a disappointment in the yield of wheat. All previous estimates have failed since the grain has been threshed out. It is small and shrivelled, due to rust and smut; in some crops so poor as not to justify getting out. The average per acre will be very small, but the immense increase of acreage over last year accounts for the increase of sixty per cent. in the aggregate yield.

Jefferson county, Missouri.—The extremely hot weather, lasting from July 1st to 20th, lessened the crop about twenty per cent. in this county, still leaving us, we think, the largest crop since 1860.

Vernon county, Missouri.—Wheat much better than common, the dry weather seeming to increase the crop.

Shawnee county, Kansas.—I have travelled over the southern portion of Kansas, and find good crops of small grains, some fields of wheat of 30 acres yielding 33 bushels per acre. Wheat has been mostly threshed. The yield will average about 18 bushels to the acre.

Dixon county, Nebraska.—The damage done by the grasshoppers and dry weather, just before the wheat headed, turns out to be more extensive than at first supposed.

Cedar county, Nebraska.—The wheat will not turn out as good as was expected the 1st of July.

Clarke county, Iowa.—Wheat, corn, and oats are better this year than ever known before.

Boone county, Iowa.—In consequence of the favorable weather, and the sudden disappearance of the grasshoppers about the 1st of July, the yield of wheat has far exceeded our expectations.

Ford county, Illinois.—Our wheat crop has come far short of our expectations, both in quality and quantity. There was a larger breadth of land sown to spring wheat than usual; but the dry, hot weather and chinch bug damaged it materially. From what I can learn, it will not yield over 12 bushels per acre, 52 pounds to the bushel.

Warren county, Indiana.—Our winter wheat is good, and the quantity exceeds that of last year two to one. Our spring wheat looked well and promised a good yield up to the time of cutting, but upon close examination it was found that the chinch bug had destroyed or damaged it very much, so as to reduce the quantity per acre to less than one-half that of last year; yet the quantity sown foots up, in the aggregate, three times the amount of last year.

Fayette county, Indiana.—The wheat threshed in this vicinity is falling at least 25 per cent. below the estimate of most farmers, ranging from 5 to 13 bushels per acre; averaging about eight bushels per acre.

Wells county, Indiana.—Our wheat yields well—best crop since 1864; is generally saved in good order without rain.

Kosciusko county, Indiana.—Wheat is not threshing as well as was expected, but, I think, will make a full average crop.

Washington county, Ohio.—We have just threshed in our neighborhood; the best crops of wheat yielded about 12 bushels per acre. Mr. J. S. Slow, one of our largest farmers, sowed about 100 bushels last fall, and had 300, mostly on good land.

Green county, Wisconsin.—Wheat will not yield more than from 10 to 14 bushels per acre. The yield of straw was immense, but the grain was not there. I often hear such remarks as, "I had straw enough for 500 bushels of wheat, but I got only 250."

Washington county, Wisconsin.—The winter wheat had a heavy growth of straw, but shrunk so badly that it is hardly marketable. Spring wheat ripened too quick, and is not as plump as in former years. The yield is from 11 to 27 bushels per acre, the average 15 bushels.

Rock county, Wisconsin.—Wheat, as far as threshed, indicates a yield of about 10 bushels per acre.

Racine county, Wisconsin.—Wheat lodged badly, and is much shrunk by long-continued hot weather, reducing the yield fully one-half.

Washtenaw county, Michigan.—Wheat heavier than ever known before; that is, a greater growth of straw, which is "struck" with rust, and the berry a little shrunk; still the crop is immense for this section.

Lapeer county, Michigan.—Wheat is generally a very good yield, better than was expected before harvest.

Box Elder county, Utah.—The grasshopper visitation has caused a deficiency of wheat, as compared with an average crop. Much good fall wheat has been raised without irrigation this season. Generally, fall wheat was but little

injured by grasshoppers. Farmers talk of sowing wheat extensively this fall.

INDIAN CORN.—This crop is generally reported in fine condition, and in most sections is so rapidly maturing as to be in little danger from frost. In portions of the west, especially so in parts of Kansas and Nebraska, the drought and the grasshoppers have materially injured the crop; but the season since June has been generally favorable, and, with the unprecedented increase in the area planted—3,000,000 of acres, or about nine per cent.—there must be an immense aggregate yield of this great staple. New Hampshire reports the average condition of the crop September 1, as compared with same time last year, at 11 tenths, (or 10 per cent. better;) Vermont, 13-tenths; Massachusetts, 10 4; New Jersey, 10.5; North Carolina, 10.8; South Carolina, 12 7; Mississippi, 11.5; Louisiana, 20; Texas, 10.5; Arkansas, 11; Tennessee, 11.4; Kentucky, 12; Illinois, 10; Ohio, 10; Wisconsin, 12; Minnesota, 13.1; Iowa, 10.9; while Maine indicates a decline to 9.3 tenths; Rhode Island, 9.6; New York, 9.9; Pennsylvania, 9.8; Delaware, 8; Maryland, 9.8; Virginia, 9.6; Georgia, 8.8; Florida, 8.5; Alabama, 8.5; West Virginia, 9.4; Missouri, 9; Indiana, 9.8; Michigan 9.2; Nebraska, 7; and Kansas, 5.8.

A few extracts, indicative of the promise in the localities named, are given:

Kosciusko county, Indiana.—Since the rain, corn has come out beyond all expectation; with a favorable fall it will be a full average crop, though it is quite late.

Kankakee county, Illinois.—We never had so good a prospect for a very large crop of corn as at present—some out of the way of frost; all will be by the 15th September, with good weather.

Athens county, Ohio.—The corn prospects have been cut short by the grasshoppers, especially in the low-lands; they have done immense damage, and are still operating. In some parts of our county hill-lands have suffered by drought.

Allen county, Ohio.—Excessive dry weather in July and August has put the corn crop back.

Harrison county, Iowa.—The corn crop is very promising, although some of it was planted late. The uncommonly hot summer has brought it on very rapidly, and if there is a favorable fall there will be more corn than ever before.

Clarke county, Iowa.—Corn better than ever known before.

Pawnee county, Nebraska.—Corn injured by chinch bugs, by excessive dry weather, and by grasshoppers. These pests stopped only a few days with us, but they took the blades of corn and a part of the ears, leaving us a shorter crop than that of 1860.

Franklin county, Kansas.—The corn crop is not as favorable as was expected about July. We have had a season of showers. In some localities corn is good. Late corn has suffered.

Russell county, Kentucky.—The weather has been very favorable to the growth of corn, and, although our prospect for a crop in May and June was discouraging, the crop has come forward rapidly, and should the season continue favorable we will make 20 per cent. more corn than last year.

Greene county, Tennessee.—Our corn crop promised but little at the end of the great drought, but the rains have brought it up wonderfully, except on poor land.

Burke county, North Carolina.—Our farmers say the prospect for a big crop of corn was never better.

King William county, Virginia.—Appearances indicate a good crop of corn. The early corn suffered by the dry weather which prevailed about four weeks, but the chief portion of the crop was late, and the rains were in time to relieve it from suffering severely.

Queen Anne county, Maryland.—Corn, on good, high land, has made wonderful improvement and looks finely; in low and wet lands it is hopelessly gone.

Hudson county, New Jersey.—The extreme heat in July has advanced our corn finely, and we think we shall have a large crop.

Bradford county, Pennsylvania.—The drought of July greatly injured the corn.

COTTON.—The reports of condition of cotton are favorable in a majority of cases. The average planted was somewhat less than in 1867, but the culture is generally better, and the prospect of a fruitful yield more promising. The improvement is more marked in Texas than elsewhere. "From all sections of our State," said our Galveston correspondent in August, "we have the most encouraging accounts of the coming cotton yield. The weather is extremely propitious, and although we have occasional complaints from some sections, of the worms appearing, the season is too far advanced to fear extensive ravages from them. In the lower tier of counties picking has already commenced."

The August returns from Tennessee claimed a very favorable season for growth. Rutherford, one of the few counties in which cotton-growing is prominent, reports an improvement of 20 per cent. in condition, in 20 days, and represents that "the fear is now that the plant is going to weeds; that the rain has been too abundant. A considerable reduction in acreage is to be noted, estimated three-tenths as compared with 1867. The crop of the county in 1867 was 20,000 bales. I estimate for this year, at 500 pounds seed cotton per acre, 16,200 bales." This indicates a decrease of 30 per cent. in acreage, and about 28 in yield. From Fayette, "cotton, though lessened as to acreage, has a fine appearance, and will come up to the average yield."

Louisiana, which has suffered in the cotton yield more than any other State since the war, is more prosperous this year. Some of our correspondents there report a decrease of one-third in acreage, and an increase in yield per acre of 20 to 30 per cent.

From Georgia a few gloomy reports have been received. A drought of ten weeks injured certain sections of the State in the early part of the season, (May, June, and July,) and further injury resulted by excessively hot weather in August. In Decatur the cotton caterpillar has multiplied and destroyed from half to two-thirds of the crop; and the same pest is reported among the sea-island cotton of McIntosh county, and also the boll worm. Hot sunshine and heavy rains caused, in some places, the dropping off of bolls and squares, as in Columbia county, where a yield of 400 pounds of lint in certain fields is still counted upon.

The following notes on cotton are appended:

Henderson county, Texas.—In some portions of our State the cotton worm has made its appearance. On the Trinity river, in Polk county, and also in Fort Bend and Brazos counties, on the Brazos river, the worm first appeared among the cotton between the 20th and 25th of July. The crop of this county promises very fine. No worms as yet.

Rusk county, Texas.—The cotton looks well. The cotton worm has appeared in small numbers, and may yet injure the crop, which will not be safe yet for 30 days.

Marion county, Mississippi.—The panic about the cotton "army worm" has subsided for the present.

Monroe county, Mississippi.—The boll worm has commenced his destructive work in this county, and may yet ruin the crop.

Hinds county, Mississippi.—Cotton worm at work; little damage done yet by them; boll worm worse than ever known; season unpropitious.

Prairie county, Arkansas.—Have the best crops in this county since 1862; some of the farmers will have at least 1½ bale per acre.

Wake county, North Carolina.—Cotton was kept back on stiff lands by

drought until August, when frequent rains stimulated the weeds too highly; on light lands the prospect is good.

Onslow county, North Carolina.—Cotton and corn are 20 per cent. better than last year; though not an average yield in corn, it is about an average in cotton.

Spartansburg district, South Carolina.—The cotton weed is large; but bolls few and small, and many of the blooms and squares dropping.

Wilcox county, Alabama.—The cotton worm (caterpillar) noticed July 20; three weeks of rain every day has caused them to spread faster than ever before. Nothing but hot, dry weather will save us any length of time.

Leon county, Florida.—The caterpillar has just about finished the cotton of this county.

Pike county, Mississippi.—The weather that succeeded the rainy spell, by checking the rapid growth of the plants, caused the forms on the middle branches to fall off to some extent, and to this must be added the depredations of the boll worm; these two causes have affected the middle cotton, and hence I have materially reduced my estimate from last month. Notwithstanding this drawback the crop is more than an average; the weed is larger than it has been for years, and as the weather is now propitious the prospects of the crop are flattering; but the maturity of the top cotton and the consequent yield of the crop will depend on the lateness of the frost. Some fears of the army worm are expressed, but the season is too far advanced for any serious injury to result from this cause. The planters are now generally picking, and the quality of the crop promises to be good.

Tensas county, Louisiana.—The rainy weather has forced the cotton stalk along almost too much for some of the old planters, but with good weather in August there will be a large crop, if there are no caterpillars. There is some talk of worms about the parish, but I have not been able to see a genuine cotton worm yet.

HAY.—Hay shows an increased product in all the northern States, except Illinois, which reports a decline of 2 per cent.; Wisconsin, 10 per cent.; and Kansas, 31 per cent.; and in each of the southern States, save South Carolina, where the decline is 12 per cent.; Florida, 10 per cent.; and Alabama, 1 per cent. In some of the States the increase is quite large—Louisiana reporting an advance of 35 per cent.; Delaware, 20 per cent.; Rhode Island and Minnesota, 13 per cent; New York, 11.1 per cent.; Maine and New Hampshire, 9 per cent.; Vermont, New Jersey, and Michigan, 8 per cent.; Arkansas, Kentucky, Missouri, and Nebraska, 7 per cent. While the quantity is greatly increased the value is also largely enhanced by the superior quality of the crop, being harvested in excellent condition.

OATS.—The crop has not fully redeemed the promise before harvest, and in several States is reported considerably below an average yield. New York, Massachusetts, and Georgia show 9.2 tenths of a crop; Pennsylvania, 8.3; Virginia, 8.6; South Carolina, 8; Maryland, 6.2; New Jersey, 7.6; Rhode Island, 7, and Delaware only 3; but Missouri, Minnesota, and Vermont report 11.2; Kentucky, 11.8; Indiana and Tennessee, 10.9; Arkansas, 10.7; other States ranging from 9 to 10, which, with the increased acreage, will probably bring the crop up to a full yield, as compared with an average crop.

RYE AND BARLEY.—Rye and barley show no material changes from previous reports, the crops having been well harvested, with few complaints of bad condition.

BUCKWHEAT.—A slight increase in acreage, with promise of fair product.

POTATOES.—Potatoes are not so promising as appeared at the date of our previous report, considerable damage having been done the crops by depredations of the potato bug, which has appeared in various parts of the west in immense numbers, reference to which will be found under head of "Extracts

from correspondence" Comparatively little injury has been occasioned by the rot—more, perhaps, by the drought—and the greater area planted will insure a large crop, despite the local drawbacks named.

Sugar-cane.—Sugar-cane indicates a considerably increased yield as compared with last year; Louisiana reporting an advance of 28 per cent.; Texas, 46 per cent.; Florida, 5 per cent.; while Alabama, Georgia, and Mississippi maintain an average yield.

Hops.—Hops show a large increase in acreage, Wisconsin reporting an advance of over 70 per cent.; Minnesota, 43 per cent.; Michigan, 25 per cent.; Iowa, 13 per cent.; Ohio, 12 per cent.; Missouri, 6 per cent.; Tennessee, 5 per cent.; New York, 18 per cent.; Maine, 25 per cent.; New Hampshire, 5 per cent.; and Vermont, 3 per cent. The general condition of the crop is also somewhat better than last year.

Tobacco.—Tobacco promises about an average yield in Vermont, Massachusetts, Connecticut, Pennsylvania, Kentucky, Alabama, Iowa, Wisconsin, and Indiana; in Michigan, Virginia, North Carolina, and Arkansas, 9 tenths of an average; New York, 9.5; Maryland, 7.7; Georgia, 9.1; Tennessee, 9.7; Missouri and Illinois, 8.6; Ohio, 9.8.

Apples.—Apples will prove a full crop in few States; in a majority not half a crop, and in several States almost an entire failure. Michigan reports 6 tenths of a crop; Ohio, 6.3; Wisconsin, 5.2; Indiana, 3.8; Illinois, 4 7; Virginia and Maryland, 3.8; Delaware, 2; Pennsylvania, 6.9; New Jersey, 4; New York, 7.3; Masssachusetts, alone, of all the Eastern, Middle, and Western States, claims more than an average yield.

Peaches.—Peaches have been quite abundant in the south and in parts of the west, but in the middle States, to which, with Maryland, the great cities look for their supply of this fruit, the yield has been very small; New Jersey, Maryland, and Delaware reporting very general failure of the crop.

Grapes.—Grapes in Vermont, New York, Alabama, Texas, West Virginia, Missouri, Kansas, Illinois, and Indiana, promise a good yield, while in few of the States is the crop set down at less than 9 tenths.

Wool.—Wool shows a general decline in weight of fleece of from 3 to 5 per cent. as compared with an average product.

Stock Hogs.—A considerable reduction is noted in the number of fattening hogs, and also in their condition as to size and weight, as compared with the average of former years. This is especially true in the southern States, Louisiana alone showing increased numbers; of the western States, only Missouri, Nebraska, Kansas, and Minnesota report above or up to an average stock. Indiana reports 9 tenths; Illinois, 8.5; Ohio, 8.9; Wisconsin, 9.5; Iowa, 9.3; Michigan, 9.7; Kentucky, 9; West Virginia, 9.1; the New England States, 9.5; and the Middle States, 9.4.

Table showing the condition of the crops, &c., on the first day of August, 1868.

STATES.	WHEAT.			RYE.	BARLEY	OATS.	CORN.	BUCKWHEAT.	
	Quantity of winter wheat, compared with 1867.	Quantity of spring wheat, compared with 1867.	Total quantity, taking winter and spring wheat together, compared with 1867.	Total quantity of rye, compared with 1867.	Condition of barley, compared with 1867.	Condition of oats, compared with 1867.	Average condition of corn on the 1st day of August, compared with 1867.	Average acreage sown, compared with last year.	Average condition on the 1st day of August, compared with last year.
Maine	10	11.2	10.8	10	9.9	10.6	10.5	10.3	10.6
New Hampshire	9.2	10.2	9.8	10.2	9.8	10.4	10.7	9.6	9.3
Vermont	9.5	11.1	10.9	9.9	10.1	9.6	11.2	10.3	9.7
Massachusetts	10.8	10.4	10.6	11	10.1	10.1	10.3	9.8	10
Rhode Island	.....	.....	.....	10	8	8.5	9	.....	.....
Connecticut	9.6	9.6	9.6	10.3	9.3	9.3	9.6	8.6	8.6
New York	10.7	10	10.2	9.8	10.4	10.4	10.1	9.3	9
New Jersey	10.1	.....	10.1	9.4	9.6	9.1	10.4	10.2	9.8
Pennsylvania	10.4	10.2	10.3	9.7	9.7	9.7	10.2	9.7	9.1
Delaware	10.5	.....	10.5	10	.....	6.5	9	10.5	10
Maryland	10.2	.....	10.2	10.2	9.8	8.1	9.6	10.4	10.2
Virginia	10.5	.....	10.5	10	.....	9.5	9.5	9.9	9.7
North Carolina	9.4	.....	9.4	10.5	9.8	10.1	11.6	10	9.8
South Carolina	8.9	.....	8.9	8.9	8.5	7.9	10.4	.....	.....
Georgia	8.3	.....	8.3	9.5	10.1	9.8	8.6	10	10
Florida	8	.....	8	8.3	.....	8.3	11.5	.....	.....
Alabama	8.4	.....	8.4	9.8	10	10.5	7.8	.....	.....
Mississippi	17	.....	12.5	10.5	9	15.1	11.9	10	10
Louisiana	9.1	.....	11	9	.....	12.3	15.7	.....	.....
Texas	6.6	.....	6.6	9.2	8.9	10	13.9	.....	.....
Arkansas	12	.....	12	10.5	10.5	12	13.2	10	8.3
Tennessee	10.7	.....	10.7	10.1	10.1	11.5	10	9.9	9.7
West Virginia	12.5	10.6	11.8	11.3	9.1	10.9	9.6	10	9.9
Kentucky	11	.....	11	10.8	9.6	12	12.6	10.1	10.5
Missouri	13.3	.....	13.5	11.2	10.8	12.5	11.5	10.1	9.7
Illinois	10.3	10.5	10.4	10.5	9.8	10.6	11.8	9.8	9.7
Indiana	10.9	11.3	11	11	10.1	11.1	10.2	9.7	9.3
Ohio	10.7	11	10.8	11.4	8.5	12	11.1	10	10.1
Michigan	10.7	11.5	10.6	10.6	10.4	9.9	9.6	9.8	9
Wisconsin	8.6	10.3	9.8	10.1	9.8	9.8	11.5	10	9.7
Minnesota	10.8	12.8	12.5	10.3	11.9	11.3	13.3	10.6	10.6
Iowa	10.5	10.6	10.6	9.9	9.9	11.3	13.9	12.5	9.8
Kansas	11.3	12.5	11.5	11.5	10.2	11	7.5	9.5	8.9
Nebraska	10	13.7	12.5	11	10	11.8	11.2	15.6	12.4

Condition of the crops, &c.—Continued.

STATES.	POTATOES.	BEANS.	SORGHUM.	HAY.				
	Average condition of potatoes on the 1st day of August, compared with last year.	Average condition August 1, compared with last year.	Average condition August 1, compared with last year.	Quantity of timothy, compared with last year.	Average condition of timothy when harvested.	Quantity of clover, compared with last year.	Average condition of clover when harvested.	Quantity of hay of all kinds, compared with last year.
Maine	10.3	11.4	.....	11.1	9.7	10.2	10.2	10.9
New Hampshire	9.4	10.7	.....	11.2	10.3	11.5	10.8	11.9
Vermont	9.2	10.4	.....	9.5	10.5	11	11.4	10.8
Massachusetts	10.6	11.2	11	10.2	10.3	10.1	10.3	10.2
Rhode Island	10	10	.....	10	10.5	10.5	10.5	11.3
Connecticut	9.5	9.3	9	10.6	11.1	10	11.3	10.3
New York	9	10.2	9.8	11.2	10.3	11	10.6	11.1
New Jersey	10.4	9.4	9.6	10.8	11.6	10.8	11.3	10.8
Pennsylvania	9.1	9.5	9.5	9.9	10.5	10.4	10.8	10.3
Delaware	10	10.5	9.5	12	12	12	12.2	12
Maryland	9.1	9.8	8.7	10.2	9.8	10.1	10	10.1
Virginia	9.6	10.2	9.5	10.2	10.1	10.5	10.7	10.4
North Carolina	10.2	10	8.9	9.6	9.8	11.4	10.5	10.6
South Carolina	10.1	10	8.1	.....	.....	11	10	8.8
Georgia	9.1	8.6	8.2	8.6	10.6	11	11.6	10.2
Florida	11	9	.....	.....	.....	.....	.....	9
Alabama	9.7	9.2	10.1	.....	.....	9.6	11	9.9
Mississippi	11.3	11.4	10.4	.....	.....	10.6	10	10.6
Louisiana	13.8	.....	9	.....	.....	10.5	.....	13.5
Texas	11.1	10.2	10	9.6	.....	10.1	.....	10
Arkansas	11.2	10.8	11.5	10.7	9.1	10.6	9	10.7
Tennessee	9.4	8.9	9.4	9.7	9.4	10.1	10	10
West Virginia	9.1	10	9.3	10.3	10.5	9.7	10	10
Kentucky	12	10.4	11.2	10.4	10.6	9.7	10.1	10.7
Missouri	9	9.3	10	10.4	9.7	11	10	10.7
Illinois	9.3	10	10.4	10.2	10.5	9.3	9.3	9.8
Indiana	9.4	9	10.3	10.6	10.6	10.1	10.4	10.3
Ohio	10	10	10.7	10	10.6	10.3	10.6	10.1
Michigan	8.2	8.8	9.3	10.6	10.5	11	10.6	10.8
Wisconsin	7.6	9.7	9.5	9.2	9.9	8	10.3	9
Minnesota	9.1	11.3	12.1	11.3	11.3	11.3	10.9	11.3
Iowa	10.5	9.4	11	10.6	10	10.2	10.3	10.5
Kansas	7	8.4	8.1	11.3	9	10	9.6	6.9
Nebraska	10.2	9.7	12.2	10.5	12	11	11	10.7

Condition of the crops, &c.—Continued.

STATES.	PASTURES. Average condition August 1, compared with last year.	TOB'CO. Average condition August 1, compared with last year.	COTTON Average condition August 1, compared with last year.	SUGAR CANE, (not sorghum.) Average condition August 1, compared with last year.	APPLES Average condition August 1, compared with last year.	PE'CH'S Average condition August 1, compared with last year.	GRAPES Average condition August 1, compared with last year.
Maine	10.7	.....	.....	.....	10.3	.....	9.7
New Hampshire	10.3	.....	.....	.....	10.7	9.6	9
Vermont	10.7	.....	.....	.....	8.2	.....	8.6
Massachusetts	10.1	10.3	.....	.....	12	7.7	7.6
Rhode Island	10.5	.....	.....	.....	13	11	10.5
Connecticut	10.3	10	.....	.....	10.6	8.3	7.3
New York	9.4	9.7	.....	.....	9	11.6	10.4
New Jersey	9.9	10	.....	.....	6.5	5.1	10.2
Pennsylvania	8.8	9.8	.....	.....	9.6	9.6	9.7
Delaware	10	.....	.....	.....	7	2	9
Maryland	8.7	8.3	.....	.....	5.4	3.6	11.8
Virginia	9.1	9.3	9.1	.....	6.1	3.3	9.7
North Carolina	9.9	8.5	10.5	.....	9.5	10.6	9.8
South Carolina	9.1	10	9.6	9	10.1	13.6	8.8
Georgia	9.1	8.7	9.2	10.5	14.5	12.5	10.1
Florida	12	10	8.2	11.6	.....	7.2	12.3
Alabama	10.3	9.3	10.3	10	13	16	11.2
Mississippi	10.7	10.8	12	10	14	16.2	13.4
Louisiana	10	11.5	13.9	12.8	10.5	15.2	13
Texas	10.7	10.1	14	12.6	11.5	16.5	17
Arkansas	10.5	10.9	13.5	.....	14.9	12.2	14.4
Tennessee	10.2	8.9	10.4	.....	12.7	11.5	9.8
West Virginia	9	9.1	.....	.....	7.6	6.8	9.9
Kentucky	10.7	10.3	10.4	.....	7.5	6.7	9.9
Missouri	9	9.6	9	.....	7.6	10.5	11
Illinois	10.1	10	10.3	.....	6.3	8.9	10.5
Indiana	9.8	9.6	.....	.....	5.1	13.7	11.1
Ohio	10.5	9.8	.....	.....	9	7.7	9.6
Michigan	8.2	8.8	.....	.....	7.7	7.9	9.6
Wisconsin	8.8	10	.....	.....	6 8	.....	10
Minnesota	10	10.2	.....	.....	10.5	.....	11.8
Iowa	9.8	9.2	.....	.....	8.8	11.6	10.8
Kansas	8.2	8.1	8.2	.....	10.6	16.9	10.9
Nebraska	9.1	9.5	.....	.....	9	7.5	10.4

Table showing the condition of the crops, &c., on the first day of September, 1868.

STATES.	WHEAT	RYE.	BARLEY	OATS.	CORN.	BUCK-WHEAT	BEANS.	SOR-GHUM.	POTATOES (Solanum tuberosum	POTATOES (Batatus edulis, sw't	COTTON
	Condition when harvested, as compared with an average crop.	Condition when harvested, as compared with an average crop.	Condition when harvested, as compared with an average crop.	Condition when harvested, as compared with an average crop.	Condition September 1, 1868, as compared with an average prospect of crop.	Condition when harvested, as compared with an average crop.	Condition September 1, 1868, as compared with an average prospect of crop.	Condition September 1, 1868, as compared with an average prospect of crop.	Condition September 1, 1868, as compared with an average prospect of crop.	Condition September 1, 1868, as compared with an average prospect of crop.	Condition September 1, 1868, as compared with an average prospect of crop.
Maine ..	9.5	9.5	8.2	9	9.3	9.8	9.4	.....	8.1	.....	.....
N. H...	9.5	9.5	9.4	9.5	11	9.8	10.4	.....	9.9	.....	.....
Vermont	10.5	10.6	10.5	11.2	13	9.6	10.7	.....	8	.....	.....
Mass ...	10	9.8	9.3	9.2	10.4	10.6	10	.....	10.5	.....	.....
R. I....	.....	10	7	7	9.6	.....	10	.....	8.3	.....	.....
Conn ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. York.	10.3	9.9	9.4	9.2	9.9	9.1	9.4	10.1	8.7	.....	.....
N.Jersey	9.3	8.8	.....	7.6	10.5	10.2	9.5	10	9.5	9.6	.....
Penn'a .	10.4	9.5	9.8	8.3	9.8	9.8	9.5	10.1	8.3	9.5	.....
Del	7	7	.....	3	8	.....	8	8	7	9	.....
Md	10.1	9.5	9.5	6.2	9.8	9.2	10	8	8.7	8.4	.....
Va	8	9.5	.....	8.6	9.6	10.3	9.4	9.2	9.2	9.3	5
N. C....	7.5	9.6	8.8	10	10.8	8.5	9.7	9.4	10	9.7	10.2
S. C....	8.3	9.4	.....	8	12.7	.....	10.5	9.5	9.6	9.3	9.5
Georgia .	7.3	9.1	9.4	9.2	8.8	10	10.2	9.3	9.5	10	8
Florida .	.....	.....	.....	10	8.5	.....	10	.....	.....	10	4
Alabama	8	9.2	9.5	9.1	8.5	.....	9.7	10	10.5	10.2	7.8
Miss....	8.8	9.6	9	9.5	11.5	.....	11.5	10.2	11.1	12	9.1
La	.....	.....	.....	10	20	.....	.....	10	.....	12	7.7
Texas ..	4.8	8.2	9.4	9.8	10.5	9	13.7	10.2	12.7	12.8	12
Arkansas	9.1	10	.....	10.7	11	.....	11	10.4	10.5	10.5	11
Tenn ...	9.1	9.5	9.7	10.9	11.4	11.4	10.2	9.6	9.7	9.6	9.8
W. Va..	10.1	9.9	10	9.6	9.4	9.7	9.8	9.5	8	9.3	.....
Ky	8.6	9.9	9.5	11.8	12	10.3	10.2	10.2	11.1	10.2	9.7
Missouri	10.6	10.5	10.1	11.2	9	8.5	8	9.7	7	9	9.7
Illinois .	9.2	9.8	9.5	9.3	10	9	8.4	9.2	7.1	8.7	9.4
Indiana.	10.6	10.9	10.1	10.9	9.8	9.8	9.1	9.3	7.4	9	.....
Ohio . ..	10	10.1	9.2	10	10	8.3	8.8	9.4	7.5	9.2	.....
Mich ...	10.5	10.6	10.5	9.4	9.2	9.7	8.7	8.6	7.1	9.5	.....
Wis	9.8	10	9.7	9.2	12	10.1	9.2	7.5	6	10	.....
Minn ...	11.4	10.5	11.2	11.2	13.1	10	10.5	10.6	8.6	.....	.....
Iowa ...	9.5	9.5	9	9.1	10.9	9.5	8.7	10.2	7.1	9	.....
Kansas .	10.8	10.4	10.1	10.4	5.8	9	6.8	9.1	5	9	.....
Neb	9.8	10.2	9.7	10	7	7.6	5.9	10.1	7.9	6.1	.....

Condition of the crops, &c—Continued.

STATES.	SUGAR CANE, (not sorghum.)	APPLES.	PE'CH'S	GRAPES	HOPS.		STOCK HOGS.		WOOL.	TOB'CO.
	Condition September 1, 1868, as compared with an average prospect of crop.	Condition September 1, 1868, as compared with an average prospect of crop.	Amount of crop, as compared with an average one.	Condition September 1, 1868, as compared with an average prospect of crop.	Acreage of hops, compared with last year.	Condition of crop September 1, 1868, as compared with an average prospect of crop.	Number for fattening, as compared with an average crop.	Condition of same as to weight and size, as compared with an average crop.	Weight of fleece, as compared with an average clip.	Condition September 1, 1868, as compared with an average prospect of crop.
Maine	.....	8.5	.....	9.8	12.5	10.2	9.3	9.6	9.7	.....
New Hampshire	.....	9	8	9.8	10.5	10.2	10	9.8	9.4	.....
Vermont	.....	8.7	.....	11	10.3	10.6	9.2	10	9.3	10
Massachusetts	.....	10.5	10.6	8.2	10	10	9.5	10	9.5	10
Rhode Island	.....	4.6	4.5	7	.....	.....	9.3	10	9.6	.....
Connecticut	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York	.....	7.3	7.3	10.1	11.8	10.4	9.4	10	9.7	9.5
New Jersey	.....	4	2	8.8	8.6	9	9.4	10	9.8	10
Pennsylvania	.....	6.9	5.8	9.2	9.9	9.6	9.5	9.9	9.7	10.1
Delaware	.....	2	.....	7	10	10	8	10	10	.....
Maryland	.....	3.8	1.6	8.6	.....	.....	9.7	9.7	10	7.7
Virginia	.....	3.7	2.3	8.1	.....	.....	8.1	9.1	9.2	9
North Carolina	.....	8.3	8	9.3	9.7	9.4	8.1	9.1	9.6	9
South Carolina	10.3	10.4	13.8	8.6	.....	.....	5.7	8	10.1	10
Georgia	10	10.2	11.5	9	8.6	10	7.5	10.2	9.9	9.1
Florida	10.5	.....	.....	.....	.....	.....	6.5	11	10	11
Alabama	10	10.8	13.9	10.3	.....	.....	7.4	8.5	10	10.1
Mississippi	10	9.6	16.6	10	.....	.....	6	9.3	10	10.3
Louisiana	.....	10	15	.....	.....	.....	10.7	10	10	15
Texas	14.6	.....	14	14	.....	.....	8	10.5	9.5	11
Arkansas	.....	10.2	10	10	.....	.....	9.5	10.7	10.4	10.1
Tennessee	.....	9.1	7.3	9.1	10.5	10.2	8.6	9.9	9.8	9.7
West Virginia	.....	5.6	5.5	10.5	10	9 8	9.1	9.2	9.6	9.8
Kentucky	10	6.2	5.2	8.9	9.8	9.4	9	10	9.9	9.9
Missouri	.....	6.7	10.1	11	10.6	9.3	10.1	9.7	10.1	8.6
Illinois	.....	4.7	9.2	10.5	11	10.4	8.5	9.4	9.5	8.6
Indiana	.....	3.8	12.8	10.4	10.1	9.8	9	9.7	9.8	10.1
Ohio	.....	6.3	7.6	9.1	11.2	10.2	8.9	9.3	9	9.8
Michigan	.....	6	7.7	9.7	12.5	11.2	9.7	9.8	9.7	9
Wisconsin	.....	5.2	.....	9.8	17.4	10.1	9.5	10.3	9.8	9.9
Minnesota	.....	10	.....	9.6	14.3	11.8	10.9	10.4	10.3	.....
Iowa	.....	8.4	.....	9.4	13	9.3	9.3	10	10	10
Kansas	.....	9.5	13	12.8	.....	.....	10	9.7	10.1	9
Nebraska	.....	7.7	7.8	7.5	.....	.....	10.1	10	10.2	6.6

EXTRACTS FROM CORRESPONDENCE.

THE TAPPAHANNOCK WHEAT.

Braxton county, West Virginia.—We have been trying the Tappahannock wheat for the past two years in the small quantities sent out from your department, and the conclusion is that it is ten days earlier than any other kind, better grain, well filled, large yield, and free from rust and weevil, and is well adapted to this country. The red Mediterranean has also been tried, and found to be early, well filled, large grain, and free from rust and weevil, but not as large yield as the Tappahannock, but well suited to the country. The old Blue Stem has been much injured by the red weevil in the same field with the Tappahannock and red Mediterranean. I think the Tappahannock will prove a valuable acquisition to this section, and under this impression we are careful with what little we have, so that all our farmers may get a start.

Coffee county, Tennessee.—The Tappahannock wheat, I am satisfied, will prove a success in this latitude. From the package sent me in 1866 I raised seed for about four acres. Last season it stood well through the hard winter, and has made beautiful wheat as well as a good yield. The white Mediterranean and white California sent me last fall were both carefully planted in drills, came up and grew luxuriantly, but did not stand the hard freezes of winter, and I did not save a grain of it.

Amelia county, Virginia.—Of 20 varieties of wheat tried here the preference is given to the Tappahannock, which is now to be found on nearly every plantation. Sown properly from the 20th of September to the 10th of October, it will ripen from the 10th to the 25th of June, and in most cases escape the rust, which destroys much of our wheat, and this year injured late-seeded crops.

Hardin county, Ohio.—From the quart of Tappahannock wheat sent me from the department I have raised 20 quarts of handsome, plump grain, fully equal, if not superior, to sample. This must be the grain for our section.

CROPS IN KANSAS.

Davis county, Kansas.—Our principal crop (corn) during the month of July was almost completely cut off by the extreme hot winds. During the first part of the month the corn appeared to wilt and the leaves curled up; in a few days the green, rich color, common to our cornfields, vanished, and, instead, the dry, parched, earless and dead stalks only were to be seen, where, in June, we prophesied the largest corn crop ever raised in Kansas.

Many of our farmers believe it is not drought which has destroyed our crops; they argue that the chinch bug is the destroyer. I am inclined to believe, however, that the prime cause of failure is drought. Plenty of rain, in my opinion, would have enabled the crops to withstand all the attacks of bugs, &c.

During a residence of 12 years in Kansas I have never seen so complete a failure of crops as we have this year. I am told that in eastern Kansas crops are good. I have been considerably over the western portion of the State and pronounce it a great failure of crops.

The grasshoppers are now upon us by the million, and are harvesting the little corn not destroyed by the drought. Many of our late immigrants on the border will be compelled to return this fall to the eastern States to winter. Many are discouraged, but the greater part of the farmers will remain and try again next summer.

TOO MANY ACRES.

Our Marion county, Iowa, reporter, writing in reference to the condition of farm crops in that county, adds:

We have again a very striking exemplification of the very foolish, in fact almost insane, rage for putting out large crops in acres. At least one-third of the small grain in this county has suffered damage and loss from want of care and attention at the proper time. Small farmers, and moderately large farmers, have their work well in hand, while the large farmers are literally and univerally overrun and run over with work that they cannot get done in season, and perhaps not at all.

GRASSHOPPERS IN NEBRASKA.

Merrick county, Nebraska.—Corn, buckwheat, beans, potatoes, apples, peaches, grapes, &c., are a total failure. I will give you the facts on my little farm. From Monday, 3d, to Friday, 7th of August, the grasshoppers destroyed 45 acres of corn, which was better than an average crop, four acres of potatoes, one acre of Lima and other beans, 2,430 head of nice cabbage, one acre of watermelons, one acre of onions, one acre cucumbers, one acre ruta bagas, two acres buckwheat, and all the herbs in my garden, as well as grape-vines, and took nearly all the leaves from more than 50,000 shade trees of various kinds. They even "chew tobacco," for, in company with a green worm and green man, they chewed up my Connecticut seed-leaf tobacco plants. My sorghum stands unhurt. I will say that on Thursday, 6th, when they commenced leaving for the south, they obscured the sun somewhat. Their line of operations extended east from here (140 miles) to Omaha, and west about 100 miles.

CHESTER WHITE PIGS.

Dr. Edwards, of Alleghany county, New York, reports the gain of 226 pounds in 88 days, by a pair of Chester county white pigs, upon 315 pounds of meal and a pailful daily of whey or sour milk. The meal was boiled with a little salt. Their weight, July 10, 1867, the time of purchase, was, respectively, 65 and 55 pounds. For a portion of the time they also had the run of a clover field.

HOG CHOLERA.

Coffee county, Tennessee.—The crop of stock has been reduced within the last two months by cholera, so called, the destruction still progressing.

THE POTATO BUG.

Green Lake county, Wisconsin.—The potato bug (*Ten-line Spearman*) continues its ravages till many fields are destroyed, and others partially so. A remedy has been found, however, which promises to check if not entirely remove them. It is as follows: One part Paris green (paint, so called) and five parts ashes, mixed and sifted on the hills while the dew is on, in the morning or evening. So far as used it seems effectual, and I think the trials have been numerous enough to warrant a recommendation of the remedy.

Brown county, Wisconsin.—The potato bug has destroyed all potato crops, except in those fields small enough to be picked over daily by hand.

Vernon county, Wisconsin.—The potato crop almost entirely destroyed by bugs.

Douglas county, Wisconsin.—The potato bugs have made their appearance in small numbers, but we think they have come too late to do the crop much injury. The bug is destroying the crop in Bayfield county, 20 miles east of us down the lake, and 18 miles west of us it is doing great damage.

Jackson county, Wisconsin.—The potato bug and drought have severely injured the crops.

Bayfield county, Wisconsin.—The potato bug has destroyed nearly all our crops.

Appanoose county, Iowa.—The potato crop is almost ruined by the ravages of the potato bug, both the Colorado and the old striped bug, the latter literally covering the ground, and flying from place to place, and even swarming in the dwellings, gardens, &c.

Des Moines county, Iowa.—The potato bugs (the old kind) in immense numbers have stripped our potatoes of their leaves.

Lee county, Iowa.—The old-fashioned potato bug is very numerous, and is doing much damage.

Sangamon county, Illinois.—The Colorado potato beetle is not so bad as last year, but the dry weather and the old-fashioned potato beetle (*Lytta vittata*) are injuring the crop not a little.

Cumberland county, New Jersey.—A few of our potato patches have been attacked by the potato bug and been completely stripped of their leaves.

Morrow county, Ohio.—Potatoes never promised better until two weeks ago, when the striped bug appeared and has been very destructive.

Mahoning county, Ohio.—The potato bugs are very bad through the county; many fields have been eaten up.

Marion county, Ohio.—The potato bugs are doing great injury to the crop, but more potatoes have been planted this year, and many are doing well.

Geauga county, Ohio.—The potato bug has made unusual ravages in some parts of this county.

Tippecanoe county, Indiana.—Late potatoes nearly a failure, owing to the bugs and drought.

THE SPANISH FEVER.

SODORUS, CHAMPAIGN COUNTY, ILLINOIS,
August 4, 1868.

Your favor is received, saying you have Professor Gamgee investigating this desperate malady now killing our cattle.

After a careful consideration of all the facts in the case, I offer for your consideration the following:

SYMPTOMS WHILE LIVING.

First. Fever, dead appearance of the hair, and a slight swelling between the inferior maxillary bones, accompanied, in most cases, with a dull look of the eyes.

Second. A hacking cough, drooping of the head and ears, dragging, reeling walk, breathing hurried, and in odor resembling the first stages of gangrene in man.

In milch cows, a sudden failure of the milk; the animal shows distress, frequently lying down, and almost always rising immediately and walking about. In most cases the bowels are found constipated, but are normal; others scour; in nearly all the urine is bloody.

To a close observer it will now be seen that the animal is fast passing into the third stage. From the first, all will be struck with the sudden failure of flesh.

Third. The breathing is more hurried, panting; rises with great difficulty; breath very offensive; nose resting on the ground, a yellow mucus constantly running from the nose. If the animal can rise at all it gets up first with its hind parts, and showing evident signs of paralysis of the whole body, with almost constant jerking of the tendons and reaching of the head and neck. At this point death soon comes to the poor sufferer, some dying in spasms, some are delirious.

POST MORTEM.

In three I found the right lung slightly diseased, but not sufficient to cause death. I may as well state here that the lungs are not the seat of the disease. The slight cough is caused by the free flow of mucus in the air passages, being caused by a suspension of vital power. The air passages and lungs of all are found covered with this yellow mucus. In some, the kidneys are found enlarged; in all they are very black. The covering does not seem to have undergone any organic change, but the pulp is congested, acid, and very tender. Here, too, you find effusion, the cavity being full of bloody urine. More marked traces of disease are found in the spleen; in all cases it is found enlarged, pied, and very tender. A very characteristic change is found in the bile, it is converted into a black, thick, granulated mass, that will hardly run, and the portion of liver to which the sack adheres is gangrenous.

The bladder does not show any change in texture, but contains a large amount of bloody urine, generally very offensive to the smell. In some cases the bladder is enormously distended, the bladder and contents of one weighing nine pounds.

In some the heart and its covering show evident signs of a diseased condition of the blood, to wit, the *pericardium* and heart being spotted by blood *extravasations*. In a few cases the same have been found under the skin. I will here remark, before I proceed any further, that sufficient evidence is here found to prove conclusively that if it is not a blood poison from the first, the vitality of the blood is soon destroyed in part.

In all cases I found the liver congested, tender, and the pulp black. In some it is normal in size. The spinal cord, as far as examined, in color is normal, but too soft; in some places the covering shows congestion, and here, too, is found the same yellow effusion. In one, the thyroid gland was found enlarged, but from what cause could not be told.

In the second stomach evident traces of a high grade of inflammation is found, probably from some local poison, as the manifolds in nearly all are found mortified.

In a few cases I have seen drops of blood standing on the animal before death, and reliable men tell me of the same.

The nostrils, fauces, and respiratory passages are found covered with this yellow mucus, or serum. It is also found deposited in the *areolar tissue*, and in a few cases large quantities were found in the cavity of the body. Nor is this strange when we take into consideration the congested condition of the liver and yellow appearance of the fluid.

The above are the anatomical conditions of the parts so far as I have been able to go. Not having time to investigate all, I here offer you a few facts in regard to the Texas cattle:

First. Are they diseased?

They are; at least some of them, and this can be proved by good men. I deprecate the necessity of having to differ with high authority. But when proof looks you in the face as plainly as it has in this it should not be passed by or covered up. Go to the farmers, and all who have seen these cattle, and they will tell you that the Texas cattle, when sick, had the same symptoms that our sick cattle had. Ask the men that had them in Chicago what was the matter, and they will tell you that they had been hurt on the cars. Who ever heard before of sick steers by shipment only 230 miles by rail and there were between two and three hundred died.

One man at Tolono told me "he had skinned 170 himself," and that "part of them were injured so as to cause death, but their vital organs were healthy." Also, that part had died of disease, and the same organs in the Texas cattle

were found diseased as in our native cattle that had died of what we call Spanish fever. One Texas steer was so badly diseased as to cause marked attention, and his spleen was found to be three feet long and fifteen inches wide. If it should become necessary, I can, at any time, bring forward the affidavits of good men in proof of the above statement.

This disease is not like the *rinderpest* of Europe, nor is it like the *pleuro pneumonia* of the eastern States. Any careful observer can readily detect the difference in the symptoms. It is to be regretted that some of our agricultural papers have been duped into the error of calling them the same disease.

So far, the facts point to the Texas cattle being diseased, and it is probably confined to localities in the south. That part of them were diseased is proved by post mortem examination.

It is a singular fact that the diseased cattle will eat dry food to the last. I saw one in particular that took water and old corn, chewed her cud, and licked herself a few hours before death, and this is not an uncommon thing.

I am sorry to be compelled to differ so widely with Professor Gamgee. As to his theory of eating certain kinds of plants in the south, not injurious to them, and retained until they arrive here, when it is thrown off in the excrement and proves poisonous to our cattle, it is not probable. If it were true, the meat of the Texas cattle would be poisonous to man.

Any plant containing sufficient poison to render the *urine* or *feces* poisonous to other cattle, three to twelve weeks after eating it, would poison the cattle that eat it.

If these cattle leave Texas in March or April, feed on dry feed on the way, and arrive here in July or August, they will hardly have the same food in them that they ate in Texas.

It is now proved that the native cattle will take the disease from the Texas cattle when separated by a fence. This being the case, how can it be the droppings from the Texas cattle? These native cattle have not been out of their pasture since the Texas cattle came, nor for some time before.

The Professor says: "Native cattle will not give it to other native cattle." How does he know this? His first visit to Tolono was on the 1st of August, and the second visit to Tolono and this place on August 5th, and his report was made on the 7th, two days after his last visit. The first case of fever was on the 27th of July, being eleven days to test the reality of our native cattle giving the disease to others. He hints at characteristic signs of blood disease, but will not, as yet, own it.

May not a solution of this desperate malady be found in some one of the parasite tribe, developed under certain conditions, and killing both Texas and native cattle, when circumstances favor its development?

The above is worthy of consideration.

We have the trichina in the hog, and the proof that the hog will fatten with this parasite in it, while if man partakes of the meat infested it is sure death. It would seem that under some peculiar law of development they generate in man faster than in hogs; so it may be with the Texas cattle disease, and if it should prove to be true the changes could be accounted for.

The above is submitted for consideration, feeling thankful if I can only be the means of causing investigation to be made, whereby the cause and cure of this awful malady may be found out and made public.

Respectfully,

A. CATRON.

Hon. HORACE CAPRON,
Commissioner of Agriculture.

Our Ford county, Illinois, correspondent states that the Spanish fever has been prevalent in that county for some time past; about forty cows having died

from it, up to the time of writing, in the village of Paxton, and one hundred head of cattle within a semicircle of five miles from northwest to southeast. The disease can be traced directly to Texas cattle landed at that station from the Illinois Central railroad. The same disease prevails in Iroquois county, and from the same cause.

DISEASE AMONG HORSES AND MULES.

GEORGETOWN, WILLIAMSON COUNTY, TEXAS,
September 4, 1868.

SIR: In one of my reports to the department last fall I called attention to a fatal disease that had made its appearance among our stock horses, running on the range in this and adjoining counties. It was first introduced in this section by the cavalry horses of San Antonio and Austin. About 20 per cent. of the one and two year old colts died from this disease last fall and winter.

It is now more malignant than ever, mostly confined to the young colts, and is spreading fearfully throughout this portion of the State. Out of 50 young colts on my ranch 20 have died, and several more probably will die. Not over one-half that are taken with it recover, and those that have it late in the season go into the winter so poor they are apt to die before spring. It is very seldom that the older stock take it; when they do it appears to be lighter than with the colts. So far I know of no remedy that appears to be of much benefit. We gave plenty of salt and sulphur; some of my neighbors think it makes the disease lighter and less fatal, but I cannot discover it.

The first symptoms are, the animal appears to droop, and in a few days swells between the fore legs near the breast, often as large as a man's head; this swelling is very hard. It seldom breaks, but sometimes discharges a little yellow, bloody water. After about ten days the swelling appears to dry up and become honey-combed; or rather, small, hard, white, corny substances protrude one-eighth of an inch over the diseased parts. I have counted over fifty of these cores (or whatever they may be called) on a space six inches square. Some, when apparently nearly well, swell out the second time, which generally proves fatal. They occasionally swell on other parts of the body or head, but not often. My observation is, that the best blooded stock suffers most.

Is this a new disease? If an old one, what is the remedy? Can you throw any light on the subject? I wish to draw the attention of the scientific to this most fatal disease.

I will add that most of the young colts became very tickey in the month of June. To remove these we used a preparation of tallow and sulphur. One or two applications freed them from these pests. Could it be that the head of this insect, by remaining in the flesh, poisoned the blood and produced the swelling? I think not, from the fact that we have generally used the same remedy for 17 years with no such consequences.

I fear that, unless some remedy is discovered for this fearful malady, it will sweep over the vast prairies of our State, and the losses may equal those of the Old World last year, with the rinderpest among their cattle. I will watch this disease closely, and report to you, from time to time, its progress.

R. E. TALBOT.

Hon. HORACE CAPRON, *Commissioner.*

Waterproof, Tensas Parish, Louisiana.—The disease called "charbon" has commenced its ravages in our immediate neighborhood. It attacks mules, cattle, and horses, in the order stated. There is a prospect now of its making a clean sweep of all the mules in the county. It is spreading from one place to another rapidly, and as yet no one has succeeded in curing any cases. The animal first shows signs of being sick by drooping and lagging. On close examination there will be found a lump somewhere about the neck or shoulders, or perhaps in the flank. This swelling grows rapidly. The animal has a high fever, and generally eats and drinks to the last. Some die within 12 hours after the disease manifests itself, and some live five or six days. Generally they die in 36 to 48 hours. The cause of this fatal disease is yet wrapped in mystery.

MARK ANDREWS, M. D.

EXPERIMENTS WITH THE POTATO BUG.

Edwin Reynolds, our Fond du Lac, Wisconsin, correspondent, writes as follows of his experience with the potato bug:

I planted potatoes May 7 and 8; the field 30 by 8 rods; planted east and west. In the centre I planted 10 rows of early varieties, which came up much sooner than the main field, and some days earlier than the Early Goodrich, planted side by side at the same time. On the 26th full grown bugs (two) made their appearance, the field being 80 rods from where potatoes had been before; 27th, ten were destroyed; 28th, thirty; 29th, sixty-seven; 30th, thirty; 31st, fifteen—up to which time all were on about a rod of ground. June 1, two other small spots were infested, when I came to the conclusion that the price of potatoes was eternal vigilance. Therefore, with two paddles in hand, I scrutinized every hill myself, destroying bugs and larvæ until the 22d, when the larvæ that I had overlooked became crawling slugs and so numerous that I resorted to a pan and stick, knocking them off and destroying them. This I practiced until July 5, when I was told by a farmer from Iowa that one pound Paris green and four pounds dry ashes sifted and well mixed, applied to the infested vines while the dew was on, was sure death to the bugs and no injury to the vines. I tried it, and to my great satisfaction found it to be so. I used the composition, passing over the field twice a week, and kept the bugs subdued until the leaves had become too tough for their food, and they have disappeared.

It will be noticed the bugs appeared in my field in patches. Many conjectures arose in my mind, as to whether they were deposited in the ground last fall or flew in the night from one field to another. I came to the former conclusion, for had they flown in the night they would have been more evenly distributed over the field.

I would recommend planting in fields of long narrow strips, and, at least once in two rods, plant the earliest varieties across the piece, that the bugs in the ground may be destroyed before the main field is up, as they will surely concentrate on the earliest varieties. I would further recommend that planting be done with single eyes, say five in a hill, that they may grow single stalks in order to more closely detect the larvæ as they are deposited on the under side of the leaves.

The most convenient method of destroying the bugs is by using a pair of tongs made of nail-rod. With such an instrument bugs and eggs can be kept off for some time with as little labor as using the Paris green and ashes, and saving the cost of the pigment.

A neighbor of mine planted potatoes on ground that grew potatoes the year before, and when covering them found from three to seven full-grown bugs on each potato.

PISCICULTURE.

In a recent letter to the Commissioner, Seth Green writes as follows in reference to his labors in pisciculture:

Last spring I visited the James, Potomac, Susquehanna, Delaware, Hudson, Connecticut, and Merrimac rivers, and find that all the fisheries are failing, a less number of shad, herring, alewives, etc., being taken each year. The chief cause of this decline is the great amount of fishing tackle used on the rivers, the take being greater than the increase. The rivers can all be restocked artificially, but not without legislation. The fishermen want to take the last fish, but no one of them will do any hatching for fear some other fisherman may take some of the fish.

The season varies in all the rivers. After a certain season in each river there should be no fish taken except for artificial propagation. The rivers must be farmed from one end to the other. You might as well undertake to raise produce on one farm to feed a country as to hatch fish enough at one fishery to stock the river. They should be hatched at every fishery, and when the fishermen put back in the river 1,000 fish for every one taken out there will be plenty of fish, and that will be done when the legislatures make laws recommended by the commissioners of fisheries. But when the fish commissioner prepares a bill, after long experience and careful consideration as to what is requisite and proper, the legislator thinks a few minutes to see if he or his friends are to be interfered with, and strokes his beard very knowingly; and there are so many such to convince that you are right, that it is almost impossible to get a bill through.

I think the hot weather has killed a great many fish in all the rivers and bays. On the 12th, 13th, 14th, 15th, and 16th of July, the water in the Connecticut river stood at from 82 to 88 degrees. I saw many dead shad in the river, and the fatality must have been much greater in the less rapid rivers, bays lakes, and ponds, and I think it a serious loss to the country.

I began to operate June 18, at Holyoke, on the Connecticut river, and hatched about

40,000,000 shad by July 12, when the water became so warm that it cooked the spawn in the boxes. Shad cannot be hatched successfully in water warmer than 78 degrees. Shad spawn cannot be carried more than two days' journey. All the water of this country can be filled with fish adapted to them. Every acre of water is worth two acres of land if properly farmed. Most persons suppose that it can be done at trifling expense. It can be done cheap, but it cannot be done for nothing. Spend one-thousandth part of the sum spent in tilling the land, in tilling the water, and fish may be sold in our markets at two cents per pound.

I hatched about 500,000 trout last season and sold about 500,000 impregnated trout spawn. Those who followed my directions hatched a fair proportion. I send the spawn to any part of the United States by express, and have sent them to the Rocky mountains by mail and express. The young fish can be sent almost any distance if sent in January or February. In hot weather they do not carry well. I have trout growing in almost every State in the Union. All the spring streams in the country can be stocked with trout. I spent two weeks on the Hudson river and hatched a few shad, but I cannot do anything without legislation.

SCUPPERNONG WINE.

The following is the analysis of a sample of Scuppernong wine forwarded to this department by Mr. J. W. Page, of Bath, Maine:

Suspended matter	0.13	per cent.
Alcohol, (by weight)	10.23	do.
Do. (by volume)	12.50	do.
Fruit sugar, (glucose)	2.50	do.
Cane sugar	2.90	do.
Extract	8.02	do.

In reply to sundry questions in reference to the manufacture and treatment of the wine, Mr. Page writes as follows:

I will answer your inquries about the Scuppernong wine in the order in which they are made.

1st. The wine was pressed the last week in September, 1863; the cask kept full and flowing at the bung until October 11th, when it was plugged up, a gimlet-hole vent being occasionally opened the following three or four days, when it also was stopped. On the first of November it was taken from the first floor to the second floor of the house, where it remained subject to all the variations of the seasons of the low country of Carolina, until it was shipped north in December, 1865. Since that time it has remained undisturbed, on the bilge, in a cool inner cellar where the temperature is rarely, if ever, above 65° in the summer, and never low enough in the winter to freeze fruit or vegetables. This afternoon a thermometer left in the cellar indicated 64°, while out of doors in a north and shady exposure, from 12 m. to 4 p. m., it stood at 84°; the previous ten days the outside temperature ranging at sunrise from 56° to 68°, and at noon from 70° to 93°.

2d. Whether there was "any *deposit of tartaric acid* left in the cask after bottling?" The wine was drawn off with a syphon, leaving a gallon or more of dregs, which was poured out and the cask filled with water, with no examination for any deposit of acid.

3d. "Was any means employed to check fermentation when first put in cask?" The juice was put into a new 20-gallon cask, which was first rinsed with a single bottle of French brandy. The wine was not further manipulated. It was tapped for sample in December, 1863, December, 1865, and in the spring of 1867.

4th. There was no fermentation on the skins.

5th. "Did you press the grapes slightly, so as not to break the pulp?" The grapes were submitted to severe pressure, so as, probably, to break much of the pulp; but the pressure was not exhaustive, as three gallons of water were afterwards added to the *mash*, and twelve gallons of additional juice obtained, from which, with ten pounds of sugar added, a sweet and more cordial wine was made.

The grapes were carefully selected with special reference to a trial of their richness in the wine-producing qualities, and no foreign aid given except the preparation of the cask mentioned. I judge a richer product might be obtained if the pressure was so regulated as to bring out only the luscious juice between the skin and the pulp without adding the qualities of the last two; and quite a variety might be made in the qualities of Scuppernong wines by different combinations of the three parts of the berry. The grapes from which the wine was made grew in the vicinity of Newberne, North Carolina.

I have known the Scuppernong grape and the wine since my first residence in North Carolina, in 1848, and have met with the bearing vines on the Hatteras sand-spit, on Roanoke island, in its palmy days before the war, through the low country, on the first range of hills near Halifax and Warrenton, and in the country around Raleigh, and have never known the vine to be subjected to any other treatment or care than to furnish it the support of a strong horizontal trellis and allow it to grow *ad libitum*. The largest specimens of vines I remember to have seen were at Jones's springs, near Warrenton, where three vines covered an immense trellis of more than a quarter of an acre, and yielded abundantly. From what I have observed of the quality of the fruit, I judge that the Scuppernong responds considerably to variations in locality, and if the wine ever becomes established in the markets of the world, the brand of some localities will gain a marked preference.

At the risk of being tedious, I will mention a single vine, the fruit of which came under my observation the year following the war, 1866, when I was filling the office of United States pension agent, at Raleigh. An old lady, past her 80th year, rode into town one morning to consult me in reference to the pension laws for the soldiers of 1812. She afterwards sent me a basket of grapes from her farm. They were purple grapes, but of the Scuppernong variety, with its peculiar skin and flavor, and growing single, or in those sparse clusters peculiar to this grape.

I had never before met with what was called the purple Scuppernong which appeared so well as or would compare favorably with the white variety in richness and flavor. The berry was of a dark, rich color, round and full, larger than the ordinary white variety, the skin thinner, the pulp smaller, and the intermediate juices much more abundant and *more luscious;* which last would seem to be extravagant praise.

In answer to my inquiries of its history, she told me that many years ago she obtained from friends in the "low country" eight Scuppernong vines, and that when they came to the period of bearing seven produced the common white, but this proved to be a purple variety. I was so struck with the peculiar richness of this splendid grape that I intended to have obtained cuttings for some grape culturists to propagate from, but resigning my office and leaving at an unfavorable season, I neglected it. Several interested in the grape culture, including Mr. Saunders of your gardens, to whom I have mentioned this vine, have thought it worth attention; and I mention it here that you may have cognizance of an individual vine which might be worthy of your attention, and might not otherwise come under your notice.

SAN JOAQUIN COUNTY, CALIFORNIA.

Our San Joaquin correspondent, Dr. E. S. Holden, writes as follows in reference to the resources of this county:

The sectional area of this county is 1,452 square miles, or 929,280 acres; about one-half of which is agricultural land, the balance tule and foot hills. The soil is principally adobe or clayey, some sections sandy and sandy loam, and on the river bottoms alluvium. The reclaimed tule land is deep and rich, almost a perfect compost; and 108 bushels of wheat have been raised on this land to the acre. From two to three crops of vegetables can be raised in the year.

The sandy sections are producing very large crops of wheat and barley this season, which is very wet. Wheat is quite free from disease or smut. Farmers have generally adopted a better system than heretofore, by selecting pure and plump seed, and soaking wheat a few minutes in vitriol water.

Harvesting commenced June 25, about two weeks earlier than usual, owing to a cool spring and summer.

It has been well tested that the soil and climate of this county are perfectly adapted to the sure and profitable culture of the semi-tropical fruits, flax, hemp, sugar-beet, sorghum, tobacco, mulberry, silk-worm, &c.

Raising the sugar-beet for sugar is now attracting much attention all over the State; also, the sorghum for sirup. The reclaimed tule land, sandy loam, and river bottoms produce an immense crop, and within a few years this State will export these home-made products.

The culture of the mulberry, the silk-worm, and the manufacturing of silk will be one of the first, if not the first and most profitable, of the industrial arts. The mulberry tree flourishes well in most of our soils, and the worm is free from disease. Large orders are often received from France and Spain for the worms and eggs.

But little corn is raised in this county. Its culture is confined to the river bottoms.

Rye is not raised to any amount, not being yet used much in this State. Large crops of it can be grown.

The oat (wild) is indigenous, and found in all sections of the State, on the plains and hillsides. More than one-third of the hay consumed is from the wild oat, worth from $10 to $25 per ton, according to the season. This year $10 is the market price.

Barley is the great horse feed, and is usually raised in very large quantities, selling from 80 cents to $1 per 100 pounds, worth now from $1 80 to $2 per 100 pounds. A small surface was cultivated this year, farmers preferring to plant wheat.

Summer fallowing is becoming the custom, farmers having found it the only safe and sure mode to secure crops in all seasons.

Wheat and barley are sowed in October, November, and December, and are called winter grain. No spring grain in the State. Sometimes these grains are planted in February and March, in new ploughed ground, but there is no certainty of a crop.

The grasses are wholly indigenous, principally red and burr clover, red-top and timothy. No grasses except as garden plants cultivated here.

Potatoes and beans are not much raised in this county, although in many sections large crops can be raised. Wheat and barley are yet the favorite products.

Pasturage is yearly lessening, owing to the cultivation of grain and mixed crops.

Farm stock is fast improving in quality by higher breeding, but decreasing in quantity. The wild or mustang race is about extinct in this county.

Sheep, like all farm stock, are healthy—no disease. Farmers and stock raisers are yearly increasing their flocks in quantity and quality, breeding to thoroughbred French and Spanish Merinos, Southdowns, and Cotswolds. The cost of keeping sheep is but a trifle aside from herding.

The celebrated Cotswold ram, "Golden Fleece," from Mr. John D. Wing, Dutchess county, New York, has recently arrived in this county, together with a small herd (14) of the same breed. They are splendid animals and much admired here.

Apples do not thrive well, the climate being too warm, or rather the summers are too hot. All stone and small fruits do well, producing in quality and quantity equal to any other section of the State, and far better than in the eastern and western States. The peach suffers in very hot seasons, and is here a short-lived tree, owing to its early maturing and over-bearing.

Blossoms of the apple and stone fruits were injured by late frosts.

Grapes (over 100 varieties of which have been cultivated here) do as well in this county as in other sections of the State, and California's success in grape production is unparalleled either in quantity or quality.

Cotton has been raised in this county, and the experiment proved satisfactory, but it is believed by some that the late frosts, which happen in some seasons, would destroy it. Others, who are well posted in the culture of cotton in the southern States, think that a sure and profitable crop can be grown throughout the southern counties to Mexico, and that this State can and should raise enough to manufacture, not alone for our own wants, but sufficient for the Pacific coast.

THE COTTON TRADE IN 1868.

The following is an exhibit of the cotton imports into Great Britain for the first quarter of the present year. It shows a marked increase in the supply from the United States, and a material advance in the relative proportion obtained from this country. In fact, the old predominance is almost shown, 69 per cent. of the entire importation being brought from this country, against 55 per cent. in the same period of 1867, and 53 per cent. in 1866.

From whence imported.	1866.	1867.	1868.
United States, cwt	1,078,955	999,403	1,681,830
Bahamas and Bermuda, cwt	2,602	42	41
Mexico, cwt	2,850	.....	.....
Brazil, cwt	149,701	114,778	151,178
Turkey, cwt	41,374	33,215	4,217
Egypt, cwt	246,897	454,005	322,881
British India, cwt	457,450	147,030	238,032
China, cwt	.....	2,041	.....
Other countries, cwt	46,580	64,705	32,627
Total	2,026,409	1,815,219	2,430,806

PREMIUMS FOR WHEAT-GROWERS.

Messrs. Moore, Foote & Co., of Detroit, Michigan, having placed at the disposal of the Michigan State Agricultural Society $400 to be awarded in three premiums for the best white winter wheat, in quantity and quality, raised upon

any five acres of land in that State for the year 1869, the society announce the premiums, with the rules and regulations by which competitors are to be governed, as follows:

For the best five acres of white wheat sown in the fall of 1868, and harvested in 1869, of the crop of which not less than five bushels shall be exhibited at the State fair of 1869, $250; second best, do., $100; third best, do., $50.

Competitors must be members of the State Agricultural Society, and all entries must be made with the secretary of the society by December 1, 1868. Each entry must give the name and post office address of the person making the entry, the size of the lot in which the wheat is situated, the name and quality of the soil, the time the field has been cleared and the crops grown in preceding three years, the tillage during the preparation for premium crop, the kind of seed sown, the quantity used upon the five acres, the method of sowing, by drill or broadcast, and the amount of plaster or other manure or top-dressing used.

When the grain is placed on exhibition each sample must be accompanied by a bunch of the heads, with a statement showing how the crop was harvested, whether by hand or machinery, how threshed and cleaned and by what machinery, the number of bushels by weight of the five-acre crop and the number of bushels per acre. Competitors will be examined under oath if necessary.

IMPORTANT INTERNATIONAL EXCHANGES.

The Commissioner of Agriculture has completed arrangements for exchanges of cereals, rare seeds, and medicinal and other plants, with various institutions and several governments of different divisions of the globe. These arrangements include the governments of Austria, Prussia, China, Japan, Guatemala, and British Honduras; the botanical gardens of Melbourne, in Australia, and of Kew, in England; the India museum, in London; the Cape of Good Hope Agricultural Society; and the commissioner of patents of the Argentine Republic. The hearty co-operation of scientific men representing these governments and institutions has been secured.

These arrangements will be carried out mainly through the active assistance of the following named officials:

C. F. Loosey, consul general of Austria, New York.

W. D. Poston, agent of the department, and S. De Champs, secretary of the Chinese commission.

S. C. Golding, secretary of Cape of Good Hope Agricultural Society, Cape Town.

Superintendent of the botanical garden, Melbourne, Australia.

Dr. Forbes Watson, secretary India Museum, London, England.

Dr. Hooker, secretary Kew gardens, London, England.

United States vice-consul at Hakodadi, Japan.

Royal minister of agriculture, Berlin, Prussia.

General Fitz-Henry Warren, Guatemala.

William S. Meckling, Belize, British Honduras.

George Latimer, Saint John's, Porto Rico, West Indies.

David Maxwell, commissioner of patents, Argentine Republic, Buenos Ayres.

Dr. Joseph Cooper Reinhardt, Campinas, Brazil.

SHEEP FARMING IN TURKEY.

The British consul at Adrianople gives some interesting details of sheep and goat farming in that district. He gives the number of sheep at 4,512,000, and of goats at 778,000; the tax on which, at four piasters each, yielded £171,297

in 1867, £10,536 more than that of the previous year. It is estimated that sheep husbandry yields 20 per cent. profit; and the number of sheep has steadily increased for the last ten years.

Large quantities of butter and cheese are made from the milk of sheep and goats, and sent to Constantinople; sheep and lambs are also sent to Constantinople for consumption. There is an active demand for the skins of lambs and goats, which are salted and packed for the French and English markets. The average cost of a flock of 1,800 ewes, 150 rams and 50 goats, is about $2 per head; the cost of keeping, &c., about 70 cents per head; and the total value of produce, exclusive of skins, $2,500, or $1 25 per head.

The two prominent breeds which are considered by the natives as distinctly local, are the Kavirjik, which bear some affinity to the grade Merinos, and the Karabash, which are black faced, and not unlike the sheep of Macedonia and Thessaly. The wool of the former is most esteemed, being long, soft, and elastic, and twisted in ringlets, which gives the name to the breed.

AMERICAN DAIRYMEN IN SWITZERLAND.

American enterprise appears to be looking to other continents for new spheres of activity. A company of Americans has located a milk-condensing establishment at Charn, by the lake of Zug, in Switzerland, intended to contribute to English consumption particularly. George H. Page, of Dixon, Illinois, is superintendent of the "Anglo-Swiss Condensed Milk Company." Milk from the Alpine region is celebrated for its richness and flavor. About 400 gallons daily is received from the peasants of the neighborhood, and manufactured so carefully that a specimen kept twelve months, as reported by Baron Liebig, has been churned into excellent butter.

METEOROLOGY.

[Compiled in the Department of Agriculture, from reports made by the observers for the Smithsonian Institution.]

JULY AND AUGUST, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and rain fall, (in inches and tenths,) for July and August, 1868, at the stations named. Daily observations made at 7 a. m., and 2 and 9 p. m.

[We go to press on the 17th—reports received after 14th must be omitted in the Notes, those after the 17th will be used in the Annual Report and in the Smithsonian Reports.]

States and stations.	July, 1868.						August, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MAINE.		°		°	°	*In.*		°		°	°	*In.*
Steuben	4	81	23	52	63.0	2.40	24	81	27, 28	50	64.9	3.80
West Waterville	5	96	25	59	71.9	3.15	2, 3, 25	86	28	52	68.8	0.96
Gardiner	5	90	23	58	69.3	1.87	3	82	28	53	67.5	1.06
Standish	14	97	23	54	73.0	3.70	2	89	13	52	.....	.....
Norway	{ 3, 4, 5, } { 12, 15 }	94	6, 26	58	72.1	.....	3	88	12, 28	54	67.6	.....
Cornish	15	99	6	56	72.8	2.90	26	85	17, 18, 28	53	67.5	2.30
Cornishville	15	97	6	58	74.1	2.80	2, 3	84	12, 13, 14, 27	56	69.0	3.13
Averages	.....	.....	.....	.....	70.9	2.80	.....	.....	.....	.....	67.6	2.25
NEW HAMPSHIRE.												
Portsmouth	13	100	23	54	73.4	3.05	2	86	17	46	64.8	2.42
Stratford	15	102	6	58	72.0	.....	.....	.....	.....	.....	.....	.....
Goffstown Centre	15	104	1	63	75.4	2.40	3	92	17	56	72.8	3.20
Shelburne	.....	.....	.....	.....	.....	.....	2	93	18	42	.....	.....
Averages	.....	.....	.....	.....	73.6	2.73	.....	.....	.....	.....	68.8	2.81
VERMONT.												
Lunenburg	3, 13, 15	95	23	53	72.1	4.63	3	85	17, 28	49	67.2	1.81
North Craftsbury	14	101	25, 26	56	73.2	1.42	2, 26	84	17	44	64.8	2.20
Randolph	13	102	26, 28	57	74.7	1.97	3	89	17	43	66.4	3.56
Woodstock	13	94	27	52	71.8	.....	26	82	17, 18	47	64.2	.....
St. Albans	14	95	27	58	75.8	.....	25, 26	83	17	49	67.7	.....
West Charlotte	14, 15	107	27	64	80.0	2.13	.....	.....	.....	.....	.....	.....
Middlebury	5	90	26	57	73.5	1.91	2	79	17	48	66.4	2.17
Averages	.....	.....	.....	.....	74.4	2.41	.....	.....	.....	.....	66.1	2.44
MASSACHUSETTS.												
Kingston	5	102	7, 29	60	72.8	1.87	30	91	28	51	70.7	3.75
Topsfield	15	97	6	55	73.1	0.41	1, 3	88	27	53	69.2	3.09
Lawrence	15	96	6	58	72.0	1.41	30	85	28	47	69.3	4.45
Georgetown	12	97	6	54	75.2	0.70	2	92	28	53	70.8	3.75

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	July, 1868.						August, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MASS.—Continued.		°		°	°	*In.*		°		°	°	*In.*
Newbury	15	103	6	56	73.8	.....	.....	.....	.....	.....	.....	.....
Milton	5	98	6, 7	55	71.7	1.11	3	90	28	46	66.5	4.25
Cambridge	12	101	6	60	75.3	.....	3, 29	93	27	51	72.0	.....
North Billerica	15	97	6	56	74.2	.....	3	87	17, 28	48	70.6	.....
West Newton	5	105	25	60	78.8	1.26	.....	.....	.....	.....	.....	.....
New Bedford	5, 12	92	9, 10	61	71.2	3.66	1, 3, 30	82	17, 28	56	69.1	4.29
Worcester	15	92	6	60	74.0	1.08	3	83	28	51	68.9	3.57
Mendon	5, 12	92	6	58	73.1	1.20	3	85	27, 28	49	68.4	5.20
Lunenburg	15	98	7	59	75.1	1.90	3	87	17	53	69.6	3.30
Amherst	15	95	27	57	74.0	3.28	3	85	13	51	69.0	5.67
Richmond	14	98	9	62	78.5	2.82	2	90	25	56	73.6	7.10
Williams College	15	94	27	55	74.7	0.37	2, 3	84	17	48	67.9	3.40
Hinsdale	14	93	6	60	74.3	.....	2	85	12	50	67.3	4.25
Averages	.....	.....	.....	.....	74.2	1.62	.....	.....	.....	.....	69.5	4.31
RHODE ISLAND.												
Newport	12, 14	86	1, 2, 10	59	69.7	2.99	10, 14, 24	82	28	53	67.9	2.71
CONNECTICUT.												
Pomfret	5, 13	89	7	58	68.2	1.35	1, 3, 30	82	28	53	67.5	5.63
Columbia	11	98	6	58	76.1	.....	30	92	28	52	72.0	.....
Middletown	13	95	7	61	74.1	2.35	30	87	28	56	70.8	7.38
Colebrook	13	94	7	61	74.7	.....	2, 30	84	13, 17	52	68.6	.....
Waterbury	13, 15	92	27, 29	61	74.1	2.86	30	86	13	53	69.2	6.71
Averages	.....	.....	.....	.....	73.4	2.19	.....	.....	.....	.....	69.6	6.57
NEW YORK.												
Moriches	13	105	29	66	78.1	5.92	22	93	13	62	75.3	4.07
South Hartford	14	98	9	67	79.7	0.80	21	86	17	47	72.6	1.84
Troy	15	100	27	64	79.4	2.35	2, 19	87	17	54	71.3	3.85
Garrison's	5	96	26, 28, 29	66	77.4	1.63	30	87	13	57	71.3	6.23
Throg's Neck	5	95	28	66	76.5	.....	4	89	14	60	76.9	.....
White Plains	13, 15	90	27	65	72.8	.....	.....	.....	.....	.....	.....	.....
Deaf and Dumb Ins.	5, 13, 15	92	7	65	76.2	6.44	3	88	13, 17	60	72.9	8.31
Columbia College	5, 15	95	7	64	77.7	4.72	30	88	17	61	74.3	5.25
Flatbush	13, 15	94	24	62	77.2	5.27	20	89	12, 27	61	73.2	2.90
Newburgh	15	97	1, 7	68	78.3	1.62	19	88	17	62	73.3	5.88
Minaville	14	100	27	61	79.0	1.10	19	89	17	50	72.5	2.89
Gouverneur	14	98	22	57	75.7	1.91	26	84	12	52	66.9	1.25
North Hammond	2, 15	100	26	63	80.4	1.00	28	96	16, 17	56	72.3	1.55
Houseville	13	95	25	60	76.1	4.35	2, 25, 26	82	16	47	67.1	4.88
Cazenovia	2	93	26	62	76.0	.....	26	84	17	47	67.4	.....
Oneida	14	97	26	60	77.3	5.97	2	87	16	51	69.0	6.60
Depauville	14	95	26	60	76.5	1.00	7	87	17	45	68.1	3.43
Oswego	4	90	26, 27	61	72.9	1.93	28, 29, 31	82	17	49	67.4	3.13
Palermo	14	99	5	57	79.1	0.70	25, 29	87	17	48	69.2	2.70
North Volney	4, 14	96	26	61	77.2	.....	.....	.....	.....	.....	.....	.....
Nichols	14	101	26, 27	59	77.5	.....	2, 26	92	17	52	70.2	.....
Newark Valley	14, 15	98	26	56	77.2	4.25	2, 22, 26	86	13	46	66.9	.....

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	July, 1868.						August, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEW YORK—Con'd.		°		°	°	*In.*		°		°	°	*In.*
Geneva	15	95	1	67	79.3	0.85	29	93	24	56	73.9	1.29
Rochester	13, 14	93	26	61	76.9	0.68	28, 29	86	17	56	69.8	3.22
Little Genesee	14	98	27	53	74.7	1.90	{7, 23, 26, 31}	84	12, 13	50	67.8	1.65
Suspension Bridge	12, 13	102	17	62	77.3	0.50	26	92	13	53	69.3	2.50
Buffalo	17	98	26	63	78.5	3.11	29	92	13, 16	55	70.8	2.43
Averages					77.2	2.63					70.8	3.62
NEW JERSEY.												
Paterson	15	98	7, 29	65	77.8	7.30	3	93	13	56	73.3	4.15
Newark	13	92	1	61	75.7	8.54	30	87	13	56	72.2	4.99
New Brunswick	5, 15	96	27	66	77.4	5.04	19	89	17	59	73.0	3.15
Trenton	13	95	28	70	82.3	4.10	1, 3	88	13	60	74.8	3.91
Moorestown	14	98	27, 28	66	78.4	3.60	1, 30	88	17	61	73.2	3.67
Elwood	2	96	11, 29	62	80.2	.....	31	90	13	55	75.5	.....
Rio Grande	14	102	27, 28	62	79.4	9.88	30	95	13	59	73.8	.....
Dover	15	98	28	64	75.9	4.16	30	87	13	57	71.9	4.04
Haddonfield	.....	.....	.....	.....	.....	.....	3	89	14	60	72.4	3.32
Newfield	15	101	27, 28	65	79.1	.....	1	95	13	58	75.0	.....
Greenwich	14	95	27	65	78.7	2.68	1, 30	86	14	59	74.2	3.83
Vineland	14	106	27	64	82.6	3.00	31	95	12, 13	60	76.4	6.02
Averages					78.9	5.37					73.0	4.12
PENNSYLVANIA.												
Nyces	13, 14	95	26	58	75.2	3.75	30	85	13	48	69.5	5.60
Fallsington	13, 14	95	27	68	78.0	3.80	30	90	12, 13, 28	63	74.0	5.60
Philadelphia	14	97	27	68	81.6	2.63	30	88	17	65	77.5	2.55
Germantown	14, 15	98	27	64	81.5	.....	1, 3, 30	94	{5, 14, 20, 21}	60	73.6	.....
Horsham	14, 15	92	27, 29	65	76.9	3.58	31	87	13, 17	59	72.4	4.82
Plymouth Meeting	14	95	27	67	78.4	.....	30	88	13, 17	60	73.7	.....
Dyberry	14	97	27	56	73.8	.....	19	84	17	46	66.0	.....
Whitehall	14, 15	96	28	64	77.7	.....	31	88	17	56	72.7	.....
Factoryville	14	98	26	58	76.9	1.05	19	87	17	49	69.3	5.30
Reading	15	98	28	67	79.9	.....	27, 30	87	13	59	74.4	.....
Parkesville	14	98	27	70	80.5	5.70	.....	.....	.....	.....	.....	.....
West Chester	14, 15	92	27, 28, 29	67	77.2	4.14	.....	.....	.....	.....	.....	.....
Ephrata	15	103	29	68	81.5	2.48	.....	.....	.....	.....	.....	.....
Mount Joy	19	103	29	65	80.8	.....	30	92	13	54	74.3	.....
Harrisburg	14, 15	96	29	70	82.6	2.36	27	87	13, 14	65	76.0	1.70
Fountain Dale	15	96	27	66	77.7	2.67	1	86	13	60	71.2	3.01
Tioga	14	106	26, 28	60	79.3	1.00	7	90	13	50	67.0	3.21
Ickesburg	15	100	29	64	77.8	4.08	26	89	15	55	71.9	1.79
Grampian Hills	14	102	29	58	75.8	3.36	31	85	13, 14	52	68.0	3.57
Johnstown	15	94	29	56	74.0	5.76	2	82	13	46	66.4	2.50
Franklin	4, 15	98	26	57	77.3	.....	27	88	13	49	69.1	.....
Connellsville	4, 19	98	27	59	79.6	.....	18	90	12	52	71.9	.....
New Castle	15	98	17, 26	61	80.3	.....	27	88	13	44	73.0	.....
Beaver	14	94	17, 26	68	82.4	0.25	18	89	13	53	75.6	0.50
Canonsburg	5	97	18, 29	64	78.3	4.08	27	90	13	50	69.0	3.33
Averages					78.6	3.17					71.7	3.34

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	JULY, 1868.						AUGUST, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MARYLAND.		°		°	°	*In.*		°		°	°	*In.*
Woodlawn	14, 15	100	27	65	79.7	4.78	30	90	13	63	74.6	3.00
Annapolis	15	98	27, 28	69	85.4	2.28	1, 19, 30, 31	88	14	62	77.3	7.39
Emmittsburg	15	104	27	65	80.4	.....	30	90	13, 14, 15	60	73.4	.....
Mt. St. Mary's Col.	15	95	27, 28, 29	65	76.5	3.05	31	86	14	58	71.5	3.67
Averages	.....	.....	.....	.....	80.5	3.37	.....	.....	.....	.....	74.2	4.69
VIRGINIA.												
Surry C. H	16	99	28	70	82.5	.....	31	94	13, 14	64	79.0	.....
Johnsontown	15	100	28	69	79.8	.....	30, 31	90	13	63	76.4	.....
Comorn	15	97	28	67	82.2	6.52	31	88	14	65	.....	.....
Mt. Solon	16	98	28	62	79.0	1.00	26, 31	88	15	57	75.5	3.24
Lynchburg	16	96	27	61	80.1	.....	1	84	13, 14	62	75.1	.....
Snowville	16, 19	92	2, 5, 8, 28	64	74.1	.....	1, 8, 31	83	13	48	69.3	.....
Wytheville	16, 17, 18	92	3	61	74.0	6.56	5,8,27,31	82	15	56	69.0	3.37
Averages	.....	.....	.....	.....	78.8	4.69	.....	.....	.....	.....	74.1	3.30
WEST VIRGINIA.												
Romney	14, 19	98	28	62	79.0	.....	18, 31	88	13, 14	56	72.9	.....
White Day	3, 4, 5, 6	98	7, 8, 9, 29	70	82.9	.....	26	95	13	53	78.4	.....
Averages	.....	.....	.....	.....	80.5	.....	.....	.....	.....	.....	75.7	.....
NORTH CAROLINA.												
Kenansville	16	105	27	72	82.4	9.53	11	95	4, 5, 6, 18, 20, 22, 24, 25, 27	76	82.2	2.72
Goldsboro'	16	101	2	72	83.3	9.30	11	96	13	64	79.0	3.25
Raleigh	16	108	28	70	84.5	5.95	.....	.....	.....	.....	.....	.....
Oxford	16	100	28	68	81.0	10.20	1, 2, 3	90	14, 15	62	76.3	2.65
Albemarle	16	99	6	64	79.1	9.70	10	94	14	57	75.6	6.44
Statesville	16	100	1	64	80.1	4.00	1, 2	88	13, 14	56	73.7	12.63
Asheville	4	86	9	66	74.1	.....	1, 6, 7, 10	83	13	58	71.3	.....
Averages	.....	.....	.....	.....	80.6	8.11	.....	.....	.....	.....	76.4	5.54
SOUTH CAROLINA.												
Aiken	17	99	3, 5, 31	71	79.4	.....	11	90	14	65	76.2	6.40
Gowdysville	16, 17	97	2, 5	72	82.1	.....	2, 11, 17, 31	90	14	65	77.6	.....
Averages	.....	.....	.....	.....	80.8	.....	.....	.....	.....	.....	76.9	6.40
GEORGIA.												
Atlanta	17	98	8, 13, 14	66	77.8	3.14	31	90	16	59	71.2	2.17
Summerville	17	99	30	74	82.7	3.93	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	80.3	3.54	.....	.....	.....	.....	71.2	2.17
ALABAMA.												
Opelika	18	103	29	70	81.6	6.28	12, 20	93	14, 16	71	79.2	3.28
Carlowville	18	100	29	70	81.2	5.70	10, 11	92	13, 23, 24, 28, 29	72	76.1	3.13
Moulton	18	92	2, 8, 30, 31	71	78.2	3.60	29	84	13, 22, 25	62	74.2	2.42
Greene Springs	18	97	9, 12, 25, 27, 28, 30	72	79.8	5.33	10, 28	89	23, 24	64	77.8	3.72
Havana	17, 18	96	9, 20, 30	71	80.0	4.72	11	89	23	66	74.0	.....

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	July, 1868.						August, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ALABAMA—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Fish River	18	92	7, 16	72	76.4	8.00	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	79.5	5.61	.....	.....	.....	.....	76.1	3.14
FLORIDA.												
Jacksonville	17	101	31	74	82.8	7.70	11, 12	97	23	74	83.6	4.70
TEXAS.												
Gilmer	.....	.....	.....	.....	.....	.....	20, 21	100	7, 27	74	83.5	3.00
Houston	20, 21	84	3, 5, 14, 30, 31	73	76.2	8.35	16, 17	84	2	66	76.6	.....
Columbia	24, 25	95	3	73	82.5	3.29	16, 17	98	26	72	82.2	7.83
Waco	17	100	7	73	87.1	1.40	13	100	20	69	83.4	2.30
Austin	28, 29, 30	96	3, 4	72	82.2	2.55	2, 14, 15, 16, 17, 18	96	20	71	81.7	7.00
Averages	.....	.....	.....	.....	82.0	3.90	.....	.....	.....	.....	81.5	5.03
LOUISIANA.												
Benton	16, 17, 18, 19, 20, 21	92	7	74	83.8	.....	2	92	22, 23	72	82.1	.....
New Orleans	19	98	28	74	82.8	.....	12	93	24	78	.....	.....
Averages	.....	.....	.....	.....	83.3	.....	.....	.....	.....	.....	82.1	.....
MISSISSIPPI.												
Grenada	19	93	1, 2, 7, 10, 14, 15	70	79.9	.....	10	90	23	60	77.3	.....
Brookhaven	16	96	29	70	78.5	.....	8, 29	94	24	69	79.4	.....
Natchez	19	89	4	72	81.9	9.64	2, 11	88	24	67	81.7	3.62
Averages	.....	.....	.....	.....	80.1	9.64	.....	.....	.....	.....	79.5	3.62
TENNESSEE.												
Elizabethton	16, 17	96	6	64	77.3	.....	27	89	13	52	83.5	.....
Tusculum College	17, 18	98	27	67	80.1	2.95	17	90	13	61	74.9	.....
Lookout Mountain	17	96	30	70	80.1	.....	.....	.....	.....	.....	.....	.....
Austin	17	100	1, 2	72	86.0	1.82	19	92	13, 14	62	73.0	4.00
Clarksville	18	94	1	70	79.4	4.41	30	88	13	61	73.0	3.02
Memphis	13, 18, 19	101	8	74	84.6	2.74	30	97	22	66	79.1	6.35
Averages	.....	.....	.....	.....	81.3	2.98	.....	.....	.....	.....	76.7	4.46
KENTUCKY.												
Chilesburg	16	98	5, 28	66	79.6	1.78	6, 17	90	13	56	72.0	6.27
Lexington	14	94	6, 28	67	79.6	2.75	17, 29	86	13	53	72.6	5.75
Louisville	16	99	29	68	81.7	5.10	17	91	11	54	74.3	6.03
Clinton	18	93	1	73	82.2	3.05	7, 29	89	22	59	74.2	3.95
Averages	.....	.....	.....	.....	80.8	3.17	.....	.....	.....	.....	73.3	5.50
OHIO.												
New Lisbon	15	100	26	60	80.3	4.80	3, 17, 25, 27	88	13	52	73.9	2.77
Steubenville	.....	.....	.....	.....	.....	.....	18, 31	86	13	53	76.0	.....
Painesville	.....	.....	.....	.....	.....	.....	31	84	12	57	69.4	.8

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	JULY, 1868.						AUGUST, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
OHIO—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Milnersville	4	99	17, 27	67	78.9	2.65	17	89	13	46	71.8	1.53
Cleveland	2, 4, 18	92	28	62	77.7	0.45	8, 31	86	13, 22	56	69.2	4.34
Wooster	14	100	28	68	83.2	.....	17, 26, 27	92	13	60	75.0	2.30
Gallipolis	15	98	29	64	79.2	3.65	.....	.....	.....	.....	.....	.....
Kelley's Island	3, 18	92	8, 9	72	81.7	0.53	15	84	12	64	73.0	3.78
Sandusky	18	92	28	68	82.9	0.48	8	83	13	56	70.3	5.23
Norwalk	18	94	26	64	78.1	.....	7, 26, 31	84	13	53	68.9	4.24
North Fairfield	15	98	28	66	79.9	1.33	17, 31	87	13	54	71.2	3.58
Westerville	15	98	25, 28, 29	68	.....	2.99	27, 31	88	12	53	69.8	4.06
Marion	15	94	26, 27, 28	66	78.5	2.32	17, 27, 31	85	13	54	69.9	2.86
Hillsboro'	16	94	25, 26	68	77.7	2.87	28	83	13, 14	56	68.1	7.34
Toledo	14, 18	100	27	62	79.7	2.50	.....	.....	.....	.....	.....	.....
Bowling Green	4, 13, 14, 15, 17, 18, 21	99	26	62	83.6	4.98	.....	.....	.....	.....	.....	.....
Kenton	18	101	27	71	87.3	4.25	6, 20	91	24	64	77.2	4.56
Urbana University	14, 15	96	28	67	80.5	1.83	16, 17	87	12	56	71.5	5.21
Bethel	17	96	5, 10, 26	68	80.7	4.38	17	90	13	55	72.6	6.13
Cincinnati	17	99	29	69	82.1	1.21	17, 28	90	13	58	73.0	4.64
Do	15	102	28	73	85.8	1.70	28	93	13	59	76.4	6.63
College Hill	14, 16	99	5, 6	70	82.0	2.50	1	89	15	60	73.1	5.38
Jacksonburg	19, 23	96	8	66	80.9	1.50	19	91	15	55	73.4	5.88
Averages	.....	.....	.....	.....	81.0	2.47	.....	.....	.....	.....	72.2	4.52
MICHIGAN.												
Monroe City	4, 5, 12, 14, 15, 18	96	26	63	80.9	2.39	15, 20	88	12	52	69.9	2.03
State Agric. College	.....	.....	.....	.....	.....	.....	25	88	10	52	70.1	2.42
Litchfield	13, 14, 17	98	27	61	79.2	2.80	1	85	10	55	65.2	1.38
Grand Rapids	1, 2, 4, 17, 18	98	25	64	81.5	.....	.....	.....	.....	.....	.....	.....
Northport	14, 17	94	7	58	75.3	0.42	6	86	21	46	66.0	2.25
Holland	18	96	25, 26	61	78.9	0.73	6, 17, 26, 27	86	10, 21	53	67.2	1.63
Otsego	18, 22	89	26	50	67.3	.....	23	89	11	46	63.0	.....
Copper Falls	11, 16	91	5	51	70.2	0.70	6	79	8	47	60.1	5.40
Ontonagon	16	98	4	56	73.5	.....	.....	.....	.....	.....	.....	.....
Coldwater	18	99	27	54	77.5	1.63	28	87	13	48	67.6	2.56
Averages	.....	.....	.....	.....	76.0	1.45	.....	.....	.....	.....	66.1	2.52
INDIANA.												
Richmond	15	95	5, 26, 27	68	79.3	4.19	.....	.....	.....	.....	.....	.....
Aurora	4, 14, 16	102	5, 6, 8, 9, 26, 28	72	83.8	3.17	16	94	13	55	74.5	6.53
Vevay	17	99	26, 27	73	84.8	1.17	28	90	13	58	76.3	4.29
Muncie	4, 14, 15, 16	98	26	66	81.5	2.40	17	92	14	55	72.1	4.15
Spiceland	4, 15	98	5, 25	69	81.7	4.09	.....	.....	.....	.....	.....	.....
Columbia City	12	100	30	66	82.9	3.44	6, 28	90	10	54	70.5	4.06
Jalapa	17	97	26	60	80.3	2.46	7, 17	89	13	47	69.7	3.06
Indianapolis	16, 17	95	26	66	80.8	4.49	28	90	13	55	70.9	2.35
State University	16	94	26	66	81.1	2.38	.....	.....	.....	.....	.....	.....
Rensselaer	18	100	25	64	82.0	2.55	17, 27	88	13	54	70.0	4.55
Merom	7	99	25	72	85.3	1.00	28	90	12	65	76.7	3.17

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	JULY, 1868.						AUGUST, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
INDIANA—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
New Harmony	18	99	9, 25	70	84.1	2.42	1	91	12, 21	63	74.9	4.82
Averages					82.3	2.81					72.8	4.11
ILLINOIS.												
Chicago	4	100	8, 9	70	81.4	2.87						
Near Chicago	4	102	8	66	84.8		17	97	20	56	73.0	
Ridge Farm	7, 13	98	27	66	82.1	1.75	17	92	12	57	70.5	2.40
Marengo	17, 18	100	25	57	79.9		6	89	12	48	83.8	5.29
Golconda	19	107	29	68	83.0	2.10	1	99	14, 17	58	75.1	2.60
Aurora	17	95	25	62	77.5	2.28	27	85	22	53	66.1	4.60
Sandwich	1, 12, 14, 30	97	25	57	80.4	3.63						
Belvidere	18	96	26	54	78.6		27	90	30	51	67.6	
Ottawa	18	102	25	60	78.4	1.96	16, 27	94	11, 30	55	71.4	3.19
Winnebago	17, 18	97	26	60	79.1	2.93	27	90	30	46	68.0	1.68
Rochelle	28	100	25	58	81.1		27	91	12, 30	52	68.5	
Wyanet	14	101	26	52	79.1	2.03	27	92	21	49	70.1	2.08
Tiskilwa	14, 18	102	26	62	80.9		27	90	21	55	66.7	
Hennepin	18	98	28	54	79.0		27	92	4, 30	52	69.0	
Magnolia	18	105	25	58	84.8	2.40	26	94	21	47	67.6	2.70
Elmira	17, 28	97	26	65	81.9	1.25	27	90	30	54	68.9	3.38
Peoria	14	99	25, 26	66	83.1	1.47	26	90	21	56	71.5	2.74
Springfield	16, 18	103	2	68	81.7							
Dubois	18	98	9, 28	64	79.5	2.70	2, 6, 27	88	21	46	67.6	2.10
Waterloo	18	103	26	70	88.0		6, 7, 16	93	21	60	78.8	
South Pass							1, 29	93	21	58	76.0	
Galesburg	18	96	26	72	82.3	1.79	27	87	31	57	68.1	3.51
Manchester	18	100	25	68	84.0	1.70	6, 26, 27	92	12	56	71.9	3.03
Mount Sterling	17	103	25	70	88.0		26, 27	90	30, 31	58	73.8	
Andalusia	17	100	25	60	82.2		6	93	21	50	70.1	
Augusta	14, 15	94	25	67	84.5	5.24	27	86	29	58	73.2	4.37
Averages					81.8	2.41					71.2	3.13
WISCONSIN.												
Manitowoc	14	94	7	59	73.6	2.45	1	88	21	53	66.2	1.36
Plymouth	1, 13	97	25	59	78.0	3.00	6	91	11	51	67.0	3.00
Milwaukee	1	96	26	56	74.6	3.73	15	88	30	48	69.0	1.85
Geneva	13, 18	98	24	61	80.2	1.05	27	89	22, 30	55	67.8	0.35
Waupacca	12, 13, 14	97	25	65	79.7		26	87	11, 21, 30, 31	55	68.2	
Embarrass	10	96	26, 28	55	77.4	3.59	6	86	13	48	63.9	3.73
Rocky Run	17	98	26	61	80.4	5.19						
Edgerton	16	102	26, 27	60	80.6		5	96	19, 29, 30	50	68.8	
Baraboo	17	99	25	58	77.7	1.00	25, 26, 27	86	21	48	65.6	
New Lisbon	12	101	25	60	81.2		25	94	20	50	73.3	
Bayfield	11, 14	96	5	52	72.4		23	90	19, 31	52	65.6	
Averages					77.8	2.86					67.5	2.60
MINNESOTA.												
St. Paul	16	97	5, 25, 27	65	78.4	4.07	24	88	30	48	67.1	3.08
Minneapolis	16	101	4, 5, 24, 25, 27	63	78.5	3.09	5	87	31	48	66.1	2.81
Sibley	16	98	24	59	77.5	1.73	24	88	31	41	65.2	2.87

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and stations.	July, 1868.						August, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MINNESOTA—Con.		°		°	°	*In.*		°		°	°	*In.*
New Ulm	16, 29	96	25	65	80.8	3.62	23	90	29	53	70.5	0.90
Sauk Centre	10	97	27	58	75.5	5.72	15	85	30	48	66.5	5.44
Averages					78.1	3.65					67.1	3.02
IOWA.												
Clinton	13, 14	98	26	62	83.8	3.60	15, 24, 26, 27	90	12	56	71.7	1.50
Davenport	17, 18	95	26	59	81.1	5.43	26	86	12	55	68.8	3.68
Dubuque	17	97	26	59	81.3	3.67	27	90	30	50	68.9	2.35
Monticello	17	96	26	60	80.2	2.90	26	88	29	50	68.1	1.70
Bowen's Prairie	20	94	25, 26	66	79.1	2.45	26	80	30	50	67.6	2.65
Fort Madison	18	103	26	64	84.2	4.85	15, 17, 26, 27	88	30	53	70.3	3.34
Guttenberg	11, 17, 19, 20	96	26	56	77.1	.....	27	89	21, 30	44	64.2	.....
Mount Vernon	13, 14, 17	99	26	63	80.9	.....	26	91	21, 29	51	67.7	.....
State University	14, 28	96	26	53	80.8	6.15	24	92	12, 21	48	69.1	4.67
Independence	17, 20	101	24	66	82.3	3.10	26	97	30	48	68.9	1.90
Near Independence	17	105	25	60	83.5	4.80	25, 27	93	29	46	68.8	3.00
Waterloo	15	100	26	64	81.3	.....	15, 25	90	29, 30	48	70.0	.....
Marble Rock	.....	.....	.....	.....	.....	.....	1	86	30	48	67.8	.....
Algona	20	93	4	65	77.2	.....	15	89	30	50	66.2	.....
Near Algona	20	96	27	64	78.1	.....	.....	.....	.....	.....	.....	.....
Fort Dodge	20	99	28	64	80.7	5.34	15	88	20, 29, 30	54	68.4	3.83
Boonsboro'	3	101	24	56	79.0	4.60	15	92	8, 9, 31	50	67.2	3.00
Rolfe	20	99	31	64	80.2	1.26	15	92	8	52	68.0	3.55
Fontanelle	20	103	24	66	84.2	6.75	17	90	29	52	69.0	3.00
Logan	19	100	25, 26	61	79.9	2.25	16	86	11, 29, 30	50	66.5	2.80
Woodbine	29	104	24	63	81.8	.....	5	90	30	50	67.4	.....
Averages					80.8	4.08					68.2	2.93
MISSOURI.												
St. Louis University	18	98	25, 26	69	84.2	1.61	6	91	12, 21, 30	61	75.2	3.95
Allenton	18	109	28	64	81.6	2.30	7, 27	97	12, 21	54	72.2	5.54
Hematite	18	102	27	64	82.3	2.65	8	94	9	53	73.8	5.90
Canton	18	106	25	64	82.6	2.56	1	95	13	45	70.1	2.46
Rolla	17, 18	96	28	62	79.5	1.87	6, 7, 8	92	9	61	73.2	7.15
Jefferson City	19	101	1	73	83.0	.....	6	95	10, 22, 31	60	75.0	.....
Hermitage	22	108	26	68	83.8	4.09	6	100	21	54	73.2	5.54
Harrisonville	19	105	1, 11, 25	70	82.9	1.53	11	98	29, 30, 31	54	71.7	8.95
Oregon	21	105	25	68	84.5	4.22	5	95	29	54	72.1	3.02
Warrensburg	20, 22	104	26	67	84.5	1.75	6, 10	92	29	55	74.2	6.86
Averages					82.9	2.51					73.1	5.49
KANSAS.												
Leavenworth	21, 22	108	24	68	85.4	5.70	1	100	21, 22	48	69.3	7.15
Baxter Springs	22	106	24	70	86.3	3.40	.....	.....	.....	.....	.....	.....
Atchison	20	107	24, 25	70	86.0	3.45	5	94	12, 30, 31	54	72.1	6.40
Holton	20	111	24	69	89.1	.....	5	97	30, 31	54	74.2	.....
State Agric. College	20, 21	98	25	67	80.2	4.70	1	92	30	54	71.1	5.94
Council Grove	21	106	25	64	85.8	3.05	1	94	20, 22	55	75.6	15.50
Averages					85.5	4.06					72.5	8.75

Table showing the range of the thermometer, &c., for July and August—Cont'd.

States and places.	JULY, 1868.						AUGUST, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEBRASKA.		°		°	°	*In.*		°		°	°	*In.*
Elkhorn	20	102	24	65	81.4	.....	23	89	22	53	69.5	.....
De Soto	20	104	24	67	82.0	3.39	5, 23	88	29, 30	53	68.8	2.45
Fontanelle	.....	.....	.....	.....	.....	.....	16	89	29	52	71.8	.....
Bellevue	20	99	24	68	85.2	1.40	24	89	29, 30	55	70.0	1.90
Glendale	20	106	24, 25	66	83.7	3.00	1, 5	90	29	50	69.6	6.30
Omaha Agency	20	105	4, 24, 31	70	83.5	2.00	.....	.....	.....	.....	.....	.....
Nebraska City	20	99	25	68	83.2	2.82	2, 23, 24	84	31	55	73.0	5.40
Averages	.....	.....	.....	.....	83.2	2.52	.....	.....	.....	.....	70.5	4.01
UTAH TERRITORY.												
Gt. Salt Lake City	.....	.....	.....	.....	.....	.....	3	91	31	50	73.3	3.69
Wanship	24	95	9	60	73.8	.....	3	95	30	56	72.2	.....
Averages	.....	.....	.....	.....	73.8	.....	.....	.....	.....	.....	72.8	3.69
CALIFORNIA.												
San Francisco	2	70	11	52	57.1	.....	.....	.....	.....	.....	.....	.....
Murphy's	24	104	2, 3	52	76.0	.....	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	66.6	.....	.....	.....	.....	.....	.....	.....

NOTES ON THE WEATHER, CROPS, ETC., FOR JULY, 1868.

[To save room we omit many notices of the "heated term," so severe, long, and general as the tables show. The fires in the Canadian woods, destroying several million dollars worth of timber, during the latter part of July, filled the air with smoke all over the northern and middle States, from Minnesota and Iowa to the Atlantic—notices of which we also omit, except in a few southern States.]

Steuben, Maine.—On the 15th, heaviest thunder-storm ever known here, with a deluge of rain; barns and houses struck, and bridges and crops swept away.

West Waterville, Maine.—Much thunder in July; temperature 2.20° above the average of the month for four years.

Gardiner, Maine.—This July is 0.6° above the July average of 32 years; the rain-fall is 1.5 inch less than the average of same period.

Standish, Maine.—Haying began on the 6th. On 15th thermometer 101° at noon; farmers had to seek shelter from the sun; very little wind in July.

Lisbon, Maine.—But two clear days after the 18th.

Norway, Maine.—The hottest July remembered here, and more damage from lightning than for ten years previous.

Cornishville, Maine.—Average July temperature for 35 years, 67°; in 1844, 72°; in 1854 and 1855, 70°; this year, 74°.

Stratford, New Hampshire.—The warmest July on my record by some 5°.

Goffstown Centre, New Hampshire.—Unexampled heat; thermometer above 100° on three days, and above 90° on ten; but little thunder in July.

Lunenburg, Vermont.—A hot month; but little wind; partial showers, so that some sections are very dry; much thunder and lightning, but little damage.

Randolph, Vermont.—Up to the 15th hotter than ever known; people suffered severely.

West Charlotte, Vermont.—Early Harvest apple ripe, 28th.

Middlebury, Vermont.—Very hot and dry; many crops suffering; streams low and mills stopped.

Kingston, Massachusetts.—July 4th, thermometer 104° from 2.30 till 4 p. m.; the hottest day on record; average temperature of the month 5° above that of July, 1867.

Topsfield, Massachusetts.—July closes warm and dry, with suffering crops, though rivers and springs are full as usual.

Georgetown, Massachusetts.—Rains few and light; no heavy winds.

Newbury, Massachusetts.—Very dry; showers pass around, but so much cloudy weather protects vegetation from drought.

Billerica, Massachusetts.—Very dry month; dry, dry, dry.

West Newton, Massachusetts.—Thermometer 100° and upward on six days in July.

New Bedford, Massachusetts.—Locust trees blossomed on 14th; catalpa, on 23d.

Lunenburg, Massachusetts.—Warmest July since 1847, when average was 75.63°; average for 30 years, 70.86°; for 1867, 69.24°; this July, 73.10°.

Richmond, Massachusetts.—July 2d to 19th, the earliest and longest heated term ever known here.

Newport, Rhode Island.—Thunder on 5th, 7th, 13th; rain on 7th and 20th.

Pomfret, Connecticut.—A few days of extreme heat, but the July average is below that of several years.

Columbia, Connecticut.—A month of unusually severe and steady heat.

Waterbury, Connecticut.—Thunder, 3d and 19th; rain, 3d, 19th, 20th, 24th, 25th; after 25th sun seldom seen; sky, very seldom, so smoky.

Moriches, New York.—Tremendous rain on 24th and 25th, from 12.30 a. m. till sunrise; 5 inches fell.

South Hartford, New York.—Month of excessive heat and drought; on 14th the farmers had to suspend work till evening; many cases of sun-stroke during this heated term.

Troy, New York.—Hottest July since 1830; probably hottest ever known here; mean, 5.92° above any July in 12 years.

Garrison's, New York.—Month warm and dry.

Mohawk, New York.—Month dry; a few partial showers.

North Hammond, New York.—Earthquake distinctly felt between 8 and 9 a. m. on 30th. Warmest July on record here; great drought, ground baked three feet deep.

Depauville, New York.—Remarkably hot and dry July.

Palermo, New York.—Hottest July on record here in 15 years.

Nichols, New York.—Hottest and dryest July ever known here, with much thunder and lightning.

Buffalo, New York.—Gardens and pastures suffered severely until rains of 22d and 24th.

Newark, New Jersey.—Heavy thunder with lightning on seven days, with much rain 19th, 24th, and 25th. Hail on the 15th. Mean of July for 25 years, 73.18°—this July 2½° hotter; but in 12 of the 25 the mercury rose higher, and 1856 and 1866 had higher means, but in every one the mercury sunk lower than in this July.

Trenton, New Jersey.—On 19th heaviest thunder-storm ever known here, from 7 to 9 p. m.; high wind from north, tearing down roofs, trees, &c.; lightning terrific and incessant, (some 20 places struck in this city;) rain-fall, 2.4 inches.

Elwood, New Jersey.—Just enough rain to keep the crops growing finely.

Newfield, New Jersey.—Hot month; first half wet—numerous thunder-showers. Wheat harvest commenced 6th; katydid heard 29th.

Nyces, Pennsylvania.—Thunder-showers on seven days.

Fallsington, Pennsylvania.—Warmest July on my record since 1849.

Dyberry, Pennsylvania.—Month clear, hot, dry. Frequent thunder and some hail.

Factoryville, Pennsylvania.—Since May 12th only 1.8 inch rain.

Reading, Pennsylvania.—Last 17-year locust seen on the 4th. Month remarkably dry; cases of sun-stroke (men and beasts) numerous.

Parkesville, Pennsylvania.—Last half of July wind mainly southeast: air hazy, obscuring the sun, and dimming it at noon.

West Chester, Pennsylvania.—Thunder-showers on seven days. From 27th smoky, without odor.

Fountain Dale, Pennsylvania.—Rain in season to save corn, but gardens suffered from drought.

Tioga, Pennsylvania.—Warmest weather ever known in this county, averaging 10° above twelve Julys previous. Only once in 12 years has the mercury been above 100° in shade; this year, once in June, five times in July, and on 14th 106°. The winds were mostly from the north in the heated term.

Indiana, Pennsylvania.—On the 5th two clouds met five miles west, (one from east, the other from northwest,) and passing west, with incessant lightning, swelled the streams, with 20 minutes' raining, more than ever known before.

Franklin, Pennsylvania.—Thunder-showers nine days. Smoky from 16th to 20th.

New Castle, Pennsylvania.—From 1st to 5th and 11th to 21st mercury rose to 90° and 98° on north side of house, shaded with trees; in the village 5° higher. A few 17-year locusts appeared June 16th; potato bugs on July 15th.

Grampian Hills, Pennsylvania.—Mean temperature 5.75° above the average of July for 5 years, and 3° warmer than either of them.

Beaver, Pennsylvania.—Month almost one continued heated term, with very little rain, and that in veins, leaving some places very dry.

Surry Court House, Virginia.—All but last six days warm and dry. First dry month since 1866. Last days smoky.

Johnsontown, Virginia.—Lightning or thunder, or both, on 14 days; rain on eight days; smoky on 26th, 27th, and 28th.

Comorn, Virginia.—July rain-fall 6.52 inches, nearly all in last 10 days; almost double the July average of 10 years past.

Mount Solon, Virginia.—July 26th dense smoke came through the gorges of the North mountain, filling the air the rest of the month.

Snowville, Virginia.—Thunder on 10 days; rain on 12 days.

Wytheville, Virginia.—July 16th, 17th, and 18th, mercury higher than in the 12 years I have kept record, except July 14th and 17th, 1866.

Kenansville, North Carolina.—From 21st to 27th numerous heavy thunder-showers caused extensive freshets on low lands.

Raleigh, North Carolina.—Thermometer ranged from 100° to 109° on 4th, 8th, 14th, 15th, 18th, and 19th.

Oxford, North Carolina.—July 16th, thermometer 100° to 101° from 2 p. m. till sunset.

Albemarle, North Carolina.—Since the 20th general rains have revived the crops. Smoke from the north filled the air during the close of July.

Gowdeysville, South Carolina.—Hottest July for years, with frequent showers.

Atlanta, Georgia.—July 17th, the hottest day in three years. Lightning and thunder nearly every day in July.

Summerville, Georgia.—Temperature of springs and wells much changed during the heated term.

Moulton, Alabama.—Month unusually showery—showers local; no storms; heat oppressive.

Fish River, Alabama.—From 21st to 25th, inclusive, squalls of wind and rain; the dampest time ever remembered.

Houston, Texas.—Much thunder and lightning; 8.35 inches rain-fall.

Austin, Texas.—July unusually oppressive, owing to the absence of the southerly breeze and the great humidity.

New Orleans, Louisiana.—Frequent, but brief, showers of great violence; occasionally very sultry.

Grenada, Mississippi.—Rain on 18 days, and in sight nearly every day. Mostly brief and limited in extent.

Brookhaven, Mississippi.—Peaches ripened June 20th. On 4th instant, ripe apples. Rain on 20 days in July.

Elizabethton, Tennessee.—From 1st to 12th a thunder-storm in sight or hearing daily. From 12th to 19th hot weather, drying earth and crops. On 19th, the severest storm of wind, rain, hail, &c., ever known here—to 27th almost one continuous rain-storm.

Tusculum College, Tennessee.—Thunder-showers here or in sight on 13 days; rain on two days, and on four days lightning only.

Clarksville, Tennessee.—Frequent showers, mostly with lightning and thunder; and from 25th to 31st very smoky, seeming to come from the west.

Lexington, Kentucky.—Month intensely warm; frequent brilliant electric phenomena, and numerous light rains; no violent storm.

Clinton, Kentucky.—First summer locust, (*cicada pruinosa,*) 2d; katydid 8th; ripe peaches 23d.

New Lisbon, Ohio.—Cutting clover 1st; wheat 9th. From June 29th to 24th instant, inclusive, (except 9th,) mercury ranged 90° and upward; the longest and hottest term ever known here.

Cleveland, Ohio.—Average temperature 2.73° higher than in any July in 13 years past.

Norwalk, Ohio.—Hottest month ever observed here; average temperature 8° higher than average of six Julys past.

Kelley's Island, Ohio.—Compared with 10 years past, the mean temperature has been 7.71° higher this July; yet the maximum no higher than in 1866; the uniformly high temperature makes the difference.

North Fairfield, Ohio.—The hottest summer in 10 years, except 1862, which it equals.

Toledo, Ohio.—This heated term extended from June 27th to July 25th—29 tropical days—and for 17 of these the mean temperature was above 80°, and rose to 87°; and in none of the 29 days was the mean of the 24 hours below 74°.

Urbana, Ohio.—The mean of the observations at 2 p. m., for 36 Julys is 80°: this year 87.60°. The nearest to this is July, 1854, when it was 84.5°.

Litchfield, Michigan.—The warmest July (days and nights) in 30 years; up to 30th, rain-fall only 0.8 inch.

Northport, Michigan.—Scarcely any rain since early in June.

Copper Falls, Michigan.—An extremely dry and warm month.

Aurora, Indiana.—The 17-year locusts last seen on 13th. From 25th to 29th, smoky; wind from northeast.

Muncie, Indiana.—Red-eyed locusts did very slight damage. All gone. First green-eyed locusts appeared on the 11th; katydids 28th. Mean average temperature 5.5° higher than 1867.

Rensselaer, Indiana.—Month very hot and dry.

Chicago, Illinois.—July 20th, temperature of lake at 30 feet depth, 72°; warmest in many years.

Near Chicago, Illinois.—Thunder, lightning, and rain on six days.

Marengo, Illinois.—Temperature of well, 49°, on the 12th. Heard katydid on the 15th.

Golconda, Illinois.—Thermometer 100°, and above, on 15 days.

Aurora, Illinois.—Month unusally warm.

Belvidere, Illinois.—Hot from 3d to 18th; supposed hottest July since 1855.

Rochelle, Illinois.—A few persons died of sun-stroke, others sickened, and some horses died at work.

Wyanet, Illinois.—On the 14th, from 10 a. m. till 4.45 p. m., the thermometer ranged 100° to 101°; no day equals this in my observations of over 25 years.

Tiskilwa, Illinois.—July 19th; the past fortnight the hottest known in my residence here of 25 years. Dead calm nearly all that time.

Hennepin, Illinois.—Heat extreme, but equable; thermometer 90° and upward on 21 days; and below 70 on only eight mornings.

Magnolia, Illinois.—July 20th; an unprecedented hot spell; for 20 days the thermometer ranged from 95° to 105° in the shade, and on sandy soils to 106° and 108°. On the 24th everything appeared autumnal; fall crickets singing, and blackbirds forming into flocks.

Dubois, Illinois.—The locust years here were 1842, 1855, and 1868, 13-year periods.

Mount Sterling, Illinois.—Averages: 9 a. m., 1867, 75.5°; in 1868, 88.3°; at 2 p. m., 1867, 85.5°; in 1868, 94.7°; at 9 p. m., 1867, 76.8°; in 1868, 84.2°; of all the observations in 1867, 78.8°; in 1868, 88°; nearly 10° higher this July than in July, 1867. With few exceptions, it was higher this year at 3 p. m. than at 2 p. m.

Augusta, Illinois.—Potato flies the 13th; katydid heard the 14th; early harvest apples ripe 16th.

Plymouth, Wisconsin.—July unusually hot and dry; mean temperature 6° above July average for 4 years past.

Geneva, Wisconsin.—Katydids the 24th; wheat harvest began the 25th.

Rocky Run, Wisconsin.—July 9th to 20th, mercury above 90° every day at 2 p. m.; longest excessive heat in nine years; people prostrated by it all through this section.

St. Paul, Minnesota.—July 29th; violent thunder storm, with high wind; lightning struck eight or ten times in the city, but did little damage.

Minneapolis, Minnesota.—Hottest month recorded here. Thunder-storm the 29th, lightning doing some damage here.

New Ulm, Minnesota.—Aurora borealis on the 8th, 10th, 14th, 15th, 19th and 25th; most splendid on the 10th. The latter noticed specially in reports from St. Paul, Clearwater Lake, Minneapolis, Dubuque, Iowa, and generally in northwestern States.

Clinton, Iowa.—Hottest month recorded here.

Dubuque, Iowa.—Month marked by uniform high temperature, steady barometer, and absence of winds. Records for 16 years show no July with so high a mean temperature.

Fort Madison, Iowa.—Rye harvest began the 2d; wheat the 16th; potato bugs cleaned out our potato patch the 18th; oat harvest the 19th.

Guttenberg, Iowa.—Great and long continued heat delayed harvesting. Winds few and light; several horses killed, and some men sickened by heat.

Iowa City, Iowa.—The hottest month in 30 years, in all of which the average temperature was, at 7 a. m., 64.9°; at 2 p. m., 82.6°; at 9 p. m., 70.2°; and of all the observations, 72.3°. This July the means were 75.6°, 89.1°, 79.5°, and 80.8° for similar observations, respectively.

Waterloo, Iowa.—Longest, greatest, and hottest drought known in 11 years. No copious rain before 31st.

Rolfe, Iowa.—Blossoming of wild flowers about a week earlier than last year.

Fontenelle, Iowa.—Flight of grasshoppers, 3d to 20th, when all were gone. Katydids heard on 9th. Wheat harvested 26th. The warmest July on record.

Logan, Iowa.—Grasshoppers left early in July.

Allenton, Missouri.—Thunder storms on 11 days; thermometer in shade 100° and upward on 13 days.

Rolla, Missouri.—High, even temperature; no cool nights; heavy dews; thunder and lightning for 18 days, almost in succession, without cooling the air.

Jefferson City, Missouri.—No beneficial rain since June 9th, and distressingly hot; grapes wilting on the vines.

Hermitage, Missouri.—Twenty days at and above 98°, and 11 days 100° to 110°. Thunder showers daily from 3d to 24th.

Leavenworth, Kansas.—Like Indian summer 24th to 29th, both inclusive; thermometer 100° degrees and upwards on 16 days.

Holton, Kansas.—Heard katydid on 12th. Much suffering from heat; on 20th thermometer stood at 113° in shade for one hour—on 20 days it was 100° and above.

Elkhorn, Nebraska.—The hottest month in 11 years; breezes soft and enervating, and nights still, sultry, and often without dew.

Omaha Agency, Nebraska.—Fine growing season.

Harrisburg, Utah.—The latter part of July was the hottest season ever known here.

Wanship, Utah.—Clouds of locusts daily, sometimes obscuring the sun, until the 25th, when host after host successively rose, organized and passed away. In rising their wings rattled like a hail-storm. In about two hours thirty such swarms rose and flew away. For two days afterwards swarms were seen overhead, flying from other quarters.

Port Townsend, Washington Territory.—Fine season for gathering crops.

NOTES ON THE WEATHER, CROPS, &c., FOR AUGUST, 1868.

Steuben, Maine.—August 15th.—In three weeks had only six hay days, and two of these were Sundays—and yet it is dry weather; 28th, light frost.

West Waterville, Maine.—Swallows left on 29th; springs and wells getting low.

Gardiner, Maine.—The dryest August on record; the nearest to it (1841) had 1.08 inch rain.

Norway, Maine.—Slight frost on 13th.

Cornish, Maine.—Temperature 4.95° higher than the average of August in 13 years.

Stratford, New Hampshire.—August warm and dry.

Goffstown Centre, New Hampshire.—Little lightning and thunder; drought; pastures suffering.

Shelburne, New Hampshire.—Haying commenced July 6th, and ended August 29th.

Lunenburg, Vermont.—Pleasant month; latter part dry; much of it smoky; sometimes almost dark with smoke.

Craftsbury, Vermont.—A cool, dry month; severe drought; many wells and springs have failed.

Woodstock, Vermont.—A slight frost on 17th.

Topsfield, Massachusetts.—Earth very dry; wells failing; slight frost on 28th.

Georgetown, Massachusetts.—Ponds, &c., almost as low as in 1864-'65; in many cases trees set out last spring killed by drought. Many sultry days, much damp weather, heavy dews and low-lying fogs, but little rain.

Billerica, Massachusetts.—Rains early in the month saved the crops, but now dry again; two thunder-showers this season.

Lunenburg, Massachusetts.—Thunder-showers on six days. Average mean temperature of August for 30 years, 68.6°—of 1867, 69.23°—this year, 69.6°.

Newport, Rhode Island.—Frequent showers on 1st, 4th, 5th, 8th, 9th, 16th, 20th, and 30th.

Troy, New York.—Not a day in August free from clouds, and five fully clouded.

Garrisons, New York.—A warm, wet month.

North Hammond, New York.—Great drought.

Nichols, New York.—Last of month very dry.

Rochester, New York.—The average temperature a little higher than the August average for 30 years.

Little Genessee, New York.—Month unusually warm and dry.

Buffalo, New York.—Month 1.5° warmer than the August mean for 10 years; pastures and gardens suffered for want of rain.

Newark, New Jersey.—The maximum temperature of this August was exceeded in 18 of the 25 preceding Augusts, but all save three had lower minimums, so that the mean temperature was 1⅓° above their average. The summer mean temperature was nearly half a degree above the 25 summers preceding, and the rain-fall nearly 6.75 inches more than those 25 summers. Katydids about the 7th.

Newfield, New Jersey.—A flock of Yankee mocking birds (bob-'o-links) in their autumn dress (as reed birds) passed south on the 28th. August has been very changeable; numerous showers but not much rain.

Nyces, Pennsylvania.—Thunder storms on 3d, 5th, 6th, 7th, 9th, 16th, 19th, 30th, and 31st.

Fallsington, Pennsylvania.—Rain on 11 days, but a month of very fine weather.

Dyberry, Pennsylvania.—On 7th, p. m., coarse hail and rain in torrents, with crashes of thunder, came from the north; then moved slowly four or five miles

north again, roaring like a great water-fall; was heard several miles; then moved slowly two or three miles east, and after returning again partly, moved off east, going over some of the ground three times, leaving the ground covered with hail, (some over an inch through,) and destroying gardens, oats, buckwheat, &c.

Harrisburg, Pennsylvania.—Rain on 14 days.

Fountain Dale, Pennsylvania.—Until 27th very dry.

Johnstown, Pennsylvania.—Month unusually dry and streams low.

Beaver, Pennsylvania.—Less rain than in any month on record; dust not laid until 31st.

Surry Court House, Virginia.—August was warm, fair, calm; favorable for farmers; rain enough for corn and warmth enough for cotton.

Comorn, Virginia.—Temperature equable and pleasant; rains seasonable and plentiful; no severe storms.

Snowville, Virginia.—August 14th, frost in a neighboring county; only a few light showers this month.

Kenansville, North Carolina.—Lightning and thunder on 3d, 4th, 5th, 7th, 10th, 12th, 25th and 29th.

Atlanta, Georgia.—Lightning and thunder on seven days.

Moulton, Alabama.—Month cloudy, and more or less damp, with foggy mornings and rank vegetation, denoting a sickly season.

Carlowville, Alabama.—Corn seriously injured by drought, and cotton by boll worm and army worm.

Jacksonville, Florida.—Mean temperature of August averages 82.55°, one degree below this month. Rain-fall of August for 16 years averages 7.055 inches, or three inches above present month. Average summer temperature is 81.82°; the summer just past was 82.09°.

New Orleans, Louisiana.—Cutting second crop of hay, 13th; elderberries ripe, 15th; oranges (not quite ripe) in market, 26th.

Grenada, Mississippi.—Much fodder lost by wet weather; cotton suffering by wet, boll worm, and caterpillar.

Brookhaven, Mississippi.—Cotton-picking commenced, 20th. This is said to be the sickliest season since 1833; not enough well to care for the sick; disease, bilious fever, tending to congestion and sometimes to typhoid type.

Elizabethton, Tennessee.—Nearly every rain this month commenced with lightning and thunder; a very copious rain on 22d and 23d.

Chilesburg, Kentucky.—Grasshoppers abundant, 8th; Concord grapes ripe, 20th; Dianas and Clintons, 28th; grasshoppers in swarms, 30th.

New Lisbon, Ohio.—Martins left here 1st; month dry; pastures dried up.

Kelley's Island, Ohio.—On the 18th, during a thunder-shower, a singular tornado arose suddenly, breaking off trees, &c. It occupied a space of only 30 rods, east and west, making perfect wreck; on either side no damage. At the same time another devastated a similar path of 30 rods on the northern side of the island.

Otsego, Michigan.—Late potatoes much injured by drought.

Ridge Farm, Illinois.—Potatoes suffering from fly, 10th; early peaches ripening, 16th.

Aurora, Illinois.—August, less wind than usual—favorable for harvesting.

Hennepin, Illinois.—August of equable temperature, with little wind and much hazy weather.

Dubois, Illinois.—Corn badly injured by drought.

Belvidere, Illinois.—Month quite cool and dry.

Bloomfield, Wisconsin.—A dry and excessively hot season.

St. Paul, Minnesota.—Harvest earlier than last year.

Clinton, Iowa.—Month pleasant, but dry—gardens suffering.

Dubuque, Iowa.—Slight frost on low lands on 5th and 26th.

Monticello, Iowa.—Hop picking commenced on 31st—a week earlier than last year.

Independence, Iowa.—August very dry; even sloughs dried up—maples shedding leaves, and other signs of an early fall.

Boonsboro', Iowa.—Mean temperature same as average of 12 years past.

Logan, Iowa.—Myriads of grasshoppers came again on 2d, and after eating corn, &c., departed from 10th to 15th, leaving vast numbers of eggs, which are now hatching out.

Woodbine, Iowa.—Weather favorable, but grasshoppers returned from NW. on 3d to 8th, remained some ten days, doing considerable damage and leaving numerous eggs, now hatching.

Rolla, Missouri.—Drought continued till middle of the month, when rains revived the crops.

Warrensburg, Missouri.—August 29th to 31st, first general rain since April—crops have suffered in many places from drought.

Leavenworth, Kansas.—Hartford prolific ripe, 1st; Concord, 8th; Delaware, 15th; Catawba, 29th—all earlier than last year. Grasshoppers came 31st.

Atchison, Kansas.—Grasshoppers came 13th, and have been numerous and destructive ever since.

Holton, Kansas.—July heat damaged corn and late potatoes to a half crop—grasshoppers have eaten the turnips.

Elkhorn, Nebraska.—Coldest August in 11 years.

Glendale, Nebraska.—A wet month and cold as July was unusually hot. Grasshoppers coming and going in great numbers all the month. In the spring their course was northerly and easterly, now southerly.

Nebraska City, Nebraska.—Grasshoppers reappeared 11th; have stripped husks and blades of late corn; destroyed buckwheat, potato vines, &c., 16th; leaving for the south 22d.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

OCTOBER,

1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

WASHINGTON, D. C., *October* 26, 1868.

SIR: I herewith respectfully present for publication a statement of the condition of the crops for October, with tables of averages, and extracts from correspondence; with articles upon the following topics: The Spanish fever; Indian agricultural exhibition; evils of land monopoly; rice and sugar crops in Louisiana; agricultural statistics in Great Britain; sales of sheep in England; European hop crops; meteorology, &c.

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
Commissioner of Agriculture.

CONDITION OF THE CROPS IN OCTOBER.

WHEAT.—The full promise of the early summer has not been realized in the wheat harvest. The increase of area over that of last year, in its effect upon the aggregate production, is nearly neutralized by a small diminution in some of the principal wheat-growing States, in the yield per acre; so that the increase in the total quantity, as shown by our October returns, is scarcely more than three per cent., and that is obtained mainly from the Pacific coast.

The progress of wheat culture westward is somewhat remarkable, and its history is not altogether unlike that of cotton, in its occupancy of new lands, and their desertion after a few years' use, not indeed to grow up in sedge or forest, but to be laid down in grass or employed in a more varied range of production. Not only does it go with population westward, but its movement is in an accelerating ratio, yielding results in bushels to each inhabitant surprising to eastern farmers. Thus has the territory between the Mississippi river and the Pacific ocean, which in 1859 yielded about 25,000,000 of bushels, harvested about 65,000,000; while the country east of the Mississippi, with its accession of population and wide distribution of agricultural implements, has made no increase, as a whole, a few of the western States barely making up the deficiency suffered in Virginia and Kentucky. It is a remarkable fact that a region which nine years ago produced only one-seventh of the wheat in the country, now supplies nearly one-third of it. A simlar progress in another decade will carry the centre of wheat production beyond the Mississippi, and were it possible for the Pacific coast again to quadruple its yield, that distant wheat field will give a larger product than the aggregate production of the United States in 1850. Well may the East imagine the supply of breadstuffs decreasing, and naturally enough the West may deem their harvests golden; but when twenty more years shall pass and the virgin soils of California shall be despoiled of their fatness, and their yield shall be reduced to ten or twelve bushels per acre, where will the spoiler go for new wheat fields to ruin?

The averages for October appear to show a decrease in production in Maine, New Hampshire, Massachusetts, Connecticut, New Jersey, North Carolina, South Carolina, Georgia, Alabama, and Texas, the latter having only half a crop. The other States indicate an increase, in most of those east of the Mis-

sissippi very slight; in Minnesota, 13 per cent.; in Iowa, 6; in Missouri, 8; in Nebraska, 13; in Kansas, 23; and in California, 25 per cent.

Many places in different parts of the country, especially in Maryland and Wisconsin, report a disappointment in the yield of grain in threshing. The disappointment, however, is sometimes in the other direction, as in the following case:

Erie county, Ohio.—From extended observations, after threshing of wheat had been more general, I have made in this return the average higher, as I am borne out in the larger estimates, and the quality of the wheat is better than last year.

The following items illustrate the tenor of many reports in favored districts:

Brown county, Minnesota.—Threshing commenced three weeks ago; wheat will average 26 bushels to the acre. This is above the average for the last five years. The grain was all put in the stack in good order and the quality is good.

Winneshiek county, Iowa.—Wheat will average full 23 bushels in this county, some as high as 35 to 38, and but a few go under 20.

Bates county, Missouri.—There never was a better crop of wheat harvested in our county. Some fields went as high as 35 bushels per acre, and one 37, and this in a region where it was said wheat could not be grown profitably until the Yankee invaded the country.

McCracken county, Kentucky.—Our crops will probably average one-fourth better than usual.

Coryell county, Texas.—The grasshoppers made their appearance yesterday, (23d,) in vast numbers, and if they continue with us as long as they did last fall, there will be another entire failure of wheat. The prospect was never more favorable for wheat sowing than now, if it were not for the grasshoppers.

Oats.—This crop is light in the eastern, middle, and southern Atlantic States; is not a full average in Michigan, Wisconsin, and Iowa; in the other States the product is above the average, the largest increase being 21 per cent. in Nebraska. In Wisconsin the deficiency is 9 per cent. Our Green county correspondent says: "The oat crop of this vicinity has been considered almost a certainty, but owing to very hot weather just as the oats were beginning to fill, the crop was materially injured. Fields that bid fair from 40 to 75 bushels per acre, when harvested, actually produced from 20 to 30. From many inquiries, I have heard of but one field producing over 30 bushels per acre. As a whole, the crop has been quite as large as that of last year."

Rye, in most of the States, is marked by figures very similar to those which show the relative product of oats.

Barley.—The barley crop is somewhat deficient in Ohio, Indiana, Illinois, Wisconsin, and in most of the Atlantic States. It will scarcely make so large an aggregate in bushels as last year.

Corn.—Considerable injury from frost is reported in northern Indiana, Illinois, Iowa, and more northern latitudes. In some portions of Iowa an estimate of two-fifths of soft corn is made. From southern Indiana, southern Ohio, West Virginia, and Pennsylvania, come complaints of immaturity in consequence of wet weather, and a few accounts of injury from drought are received. No general or very severe droughts have been reported. The high temperature of July was favorable to the growth of corn, but the unusual coolness of the later summer gave a sudden and injurious check at the critical period of earing, resulting in late ripening, smut, and other evidences of abnormal conditions. Yet the acreage is undeniably large in most of the States, and nowhere is there very serious failure. The total product will be, therefore, not what was hoped in the early season, or what is needed for a country with a rapidly increasing population, but a somewhat larger quantity than last year, which was a season peculiarly adverse to corn production. A good crop should exceed one thousand millions

of bushels. Last year's production was little more than three-fourths of that quantity, and the present, though not yet fully harvested, and the material for a final estimate returned, does not promise to reach that figure by 10 or 15 per cent.

COTTON.—The area in cotton is somwhat less than last year; its culture has been better; the preparation for planting more complete; and labor more regular and reliable, as a general rule. Early in the season the promise was fine; serious losses have of late been incurred, however, principally from depredations of the cotton caterpillar, or army worm, which have proved more general and severe in Georgia than elsewhere, very troublesome in portions of Alabama and Mississippi, and somewhat prevalent in the Carolinas and in Arkansas. Heavy rains in Tennessee and the southwest have caused anxiety, but done less damage than was expected. Our returns indicate a smaller crop, possibly by 15 or 20 per cent., than last year; but the complete estimate will not be made till the crop is gathered.

It is the aim of the statistician to give the exact truth, nothing to extenuate, and nothing to depreciate. Some farmers would conceal the actual facts of the harvest, with the expectation of better prices as a result of the deception. The hope is fallacious; the fraud will always be discovered. On the other hand, there are always buyers who will give publicity to extravagant estimates to depreciate prices and magnify a scarcity, after having purchased heavily, to give an unnatural stimulus to the market. Honesty is decidedly the best policy, for farmers as well as others. In these estimates, while a doubt exists, it may be proper to give producers the benefit of it, and make the figures somewhat smaller rather than larger than the probable result. Acting on this principle, the cotton estimate for 1866 was placed at 1,835,000 bales, and that of 1867 at 2,340,000 bales, while the actual shipments of the cotton for those years reached very nearly 2,000,000 and 2,500,000 bales respectively. Could every pound have been counted in advance, no fairer statement could have issued from this department.

PEAS AND BEANS will be nearly an average crop.

BUCKWHEAT is very generally deficient; Connecticut, New Jersey, Minnesota, California, and some of the southern States, furnish favorable exceptions.

SORGHUM has been more successful than last year. Illinois and Wisconsin are not quite up to last year's production. Both buckwheat and sorghum were injured by early frosts in high latitudes.

POTATOES.—In southern New England, New Jersey, Delaware, the Gulf States and California, potatoes are reported a full average crop, with a deficiency of 10 per cent. in New York and Pennsylvania, from 3 to 7 per cent. in the southern Atlantic States and Tennessee, 20 in Illinois, 10 in Iowa, 11 in Indiana, 15 in Ohio, 16 in Michigan, and a greater or less reduction in other western States.

SUGAR-CANE.—Returns from Louisiana indicate an increase of 42 per cent. over last year.

OLD WHEAT.—The amount of old wheat on hand is somewhat less than usual throughout the country with the exception of the cotton States, which have a higher average than last year. This remark will not apply to Texas, where the granaries are uniformly empty. The quantity left over in Wisconsin is relatively somewhat lower than in the neighboring States.

FATTENING CATTLE.—The stock of beeves in preparation for market is larger than last year west and south of New Jersey, except in Indiana and Illinois, which States constitute an important beef-producing section. The deficiency in Illinois is placed at 2 per cent.; in Indiana 5 per cent. The condition of fattening cattle is almost universally superior, giving promise of better and larger meat supplies than usual.

Table showing the condition of the crops, &c., on the 1st day of October, 1868.

STATES.	WHEAT.		OATS.		RYE.		BARLEY.	
	Average product compared with 1867.	Average quality compared with 1867.	Average product compared with 1867.	Average quality compared with 1867.	Average product compared with 1867.	Average quality compared with 1867.	Average product compared with 1867.	Average quality compared with 1867.
Maine	9.3	10	9	9.5	9.4	9.8	9	9.2
New Hampshire	8.6	9.1	8	8.6	9.3	9.8	7.5	8.3
Vermont	10.2	10.2	9	9.1	9.6	10	9	9.3
Massachusetts	9.7	9.3	9.4	9.6	10.1	9.6	9.6	9.6
Rhode Island	.....	.....	8.2	8.2	9.2	9.7	8	8.5
Connecticut	9.8	9.8	9.4	8.8	9	9.4	9.4	9.4
New York	10.3	9.8	9.4	9.2	9.5	9.6	9.9	9.5
New Jersey	9.5	9.8	8.1	8	9.1	9.5	9.3	9.5
Pennsylvania	10.2	10	9.2	8.6	9.6	9.7	9.6	9.6
Delaware	10.1	10.6	5.3	6	10	11	.....	.....
Maryland	10.5	9.7	8	7.2	9.6	10.1	9.5	9.5
Virginia	10.3	9.9	9.2	9	9.9	10	.....	.....
North Carolina	8.7	8.8	10	9.7	10	9.8	10.5	9.6
South Carolina	7.7	7.8	8	8.4	9.8	10	10.6	10
Georgia	8	8.7	9.2	9.2	9.3	9.7	9.9	10
Florida	.....	.....	9.2	9.4	8.5	9.5	.....	.....
Alabama	8.7	9	9.5	9.5	9.3	9.7	10	10.2
Mississippi	10.1	9.7	12.3	10.7	9.7	9.7	9	9
Louisiana	12.5	10	9.6	10.6	14	10.5	.....	.....
Texas	4.9	7.8	10.6	10.5	9.3	10.1	8.2	10
Arkansas	11.5	10.5	11.2	10.6	10.2	9.7	10.2	9.4
Tennessee	10.2	9.5	10.9	10.1	9.4	9.8	9.5	9.6
West Virginia	11.5	11.9	11.7	10.1	12	10.8	8.5	9.6
Kentucky	10	11.1	11.5	10.9	10.1	10.2	9.4	9.9
Missouri	10.8	10.1	10.5	10.4	11.5	10.4	10.6	10
Illinois	10.2	9.6	10.1	9.5	10.1	9.9	9.8	9.7
Indiana	10.3	11.2	10.1	9.7	10.7	10.1	9.7	9.9
Ohio	10.5	10.4	10.4	9.3	10.3	10.1	9.3	9.8
Michigan	10.5	10.3	9.4	9.2	10.1	9.8	10.3	10.1
Wisconsin	10.3	9.8	9.1	8.7	9.7	9.8	9.9	9.8
Minnesota	11.3	10.2	11.4	9.7	10.5	10	11.6	10.4
Iowa	10.6	10.4	9.6	9.3	10.5	10.3	10	10.1
Kansas	12.3	10.3	10.5	10.3	9.9	10.1	9.5	9.3
Nebraska	11.3	10.7	12.1	10.4	9.5	9.3	11.8	9
California	12.7	10.1	11	10.2	11	10	11	10.5

Condition of the crops, &c.—Continued.

STATES.	PEAS.		BEANS.	BUCK-WHEAT	CORN.	POTATOES, (Solanum tuberosum.)	POTATOES, (Batatus edulis, sweet.)	TOBAC-CO.
	Average compared with 1867.	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Condition October 1, compared with an average.
Maine	9.7	9.2	12	9.3	10.3	9	.....	.....
New Hampshire	9.8	9.5	8.8	9	10.5	8.4	.....	.....
Vermont	9.6	9.7	10	8.7	11.2	9.1	.....	10
Massachusetts	10.2	9.6	9.3	11	9.8	9.4	.....	10.3
Rhode Island	10	10	10	10	10.8	10.2	10	.....
Connecticut	10	9.6	10.2	10.4	10.4	10.6	10	10.2
New York	9.2	9.3	9.2	9	10.1	9	9.5	9.7
New Jersey	9.8	9.5	10.1	10.1	10.9	10.1	10.1	10
Pennsylvania	9.7	9.5	9.4	9.9	10.3	9	9.9	10
Delaware	9	10	9.7	9	10.3	10	10	.....
Maryland	9.5	9.5	10.2	9.6	9.2	9.6	8	9
Virginia	10.6	10.3	9.8	10.7	10.2	9.6	9.4	9.9
North Carolina	11	10.2	10.2	10.6	10.5	9.7	9.2	9.7
South Carolina	10.6	10.6	10	.....	11.1	9.6	9.5	9
Georgia	10.5	9.9	9.9	10.1	9.4	9.3	10.2	9.6
Florida	11	10.2	11	.....	10.4	.....	11	.....
Alabama	10.8	10.9	10.1	.....	9.7	10	11.2	10
Mississippi	13.8	13.3	9.6	.....	11.7	12	12	10.6
Louisiana	12.8	11	.....	.....	11.1	12	11.7	12.6
Texas	11.9	10.7	10.3	.....	10.8	11.2	12.8	10.9
Arkansas	14.2	10.2	10.3	11.4	10.8	11.2	11	10.4
Tennessee	10.8	10.1	10.8	11	10.2	9.6	9.2	10
West Virginia	9.8	10	10.4	10.6	9.9	8.8	10.2	9.2
Kentucky	10	9.8	11.1	10.4	11.6	10.9	10.8	10.3
Missouri	9.6	9.5	9.5	8.4	9.7	7.9	9.8	8.5
Illinois	9.7	9.7	8.8	8.4	10.2	8	9.4	10.4
Indiana	9.7	9.7	9.3	8.4	10.2	8.9	9.9	9.5
Ohio	9.7	9.7	9.4	9.4	10.6	8.5	10.2	10.6
Michigan	9.8	9.5	9.6	9	9.8	8.6	9.5	9.4
Wisconsin	9.8	10	9	9.1	10.5	6.7	7.6	9.7
Minnesota	10.1	10.2	10.5	10.6	12.5	9.6	10	10.4
Iowa	9.4	9.1	8.2	8.4	10.6	9	9.2	9.3
Kansas	10.7	9.5	7.6	8.6	6	8	8.8	9.4
Nebraska	10	8.3	8	7.8	7.8	7.6	8.2	10
California	9.7	10.5	10.1	10	10.6	11.5	11	.....

Condition of the crops, &c.—Continued.

STATES.	SORGHUM.	SUGAR-CANE, (not sorghum.)	COTTON	OLD WHEAT	FATTENING CATTLE.	
	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Condition October 1, compared with an average.	Average amount of old wheat in your county compared with 1867.	Average number of fattening cattle compared with 1867.	Average condition October 1, compared with 1867.
Maine	.....	.....	.....	9.7	9.6	9.8
New Hampshire	.....	.....	.....	9	9.2	10.1
Vermont	.....	.....	.....	8.5	9.5	9.8
Massachusetts	10	.....	.....	9.3	9.7	10.3
Rhode Island	.....	.....	.....	.....	9.7	9.7
Connecticut	9.7	.....	.....	10	10.4	11.4
New York	9.1	.....	.....	9.3	9.8	10.1
New Jersey	9.7	.....	.....	9.5	9.4	10
Pennsylvania	10.3	.....	.....	8.6	10	10.1
Delaware	9	.....	.....	10.3	11	10.3
Maryland	9	.....	.....	9.5	10	10.2
Virginia	9.5	.....	7.3	7	10.8	10.5
North Carolina	9.5	.....	9.1	8.6	9.4	10.5
South Carolina	9.5	.....	8	9.6	9.2	10.1
Georgia	10	10.3	7.5	11	10.2	10.9
Florida	.....	11.1	5	.....	9.5	12.5
Alabama	11.3	9.7	8.2	11.2	10.5	10.7
Mississippi	11.4	11.6	9	10.8	10.5	11.5
Louisiana	11.2	12.2	9.8	.....	12.8	10.6
Texas	10.6	12.2	10.7	4	10.3	11.3
Arkansas	10.8	.....	10	10.7	12.2	10.8
Tennessee	11.7	.....	8.2	10.3	10.3	11.6
West Virginia	9.8	.....	9	7.6	11.1	10.3
Kentucky	10.5	9.8	10.5	8.8	10.3	11.3
Missouri	9.5	.....	8.8	10	11.4	10.8
Illinois	9.3	.....	11.2	8.7	9.8	10.6
Indiana	10.1	10.5	.....	8.6	9.5	11
Ohio	10.3	.....	.....	8.5	10	10.5
Michigan	9.3	.....	.....	8.7	10.1	10.1
Wisconsin	9.4	.....	.....	7.1	10.4	10.2
Minnesota	11.3	.....	.....	8.9	11.2	11.1
Iowa	10	.....	.....	9.4	11.1	10
Kansas	9.1	.....	9.7	9.6	11.8	11.1
Nebraska	10.3	.....	.....	9	10.6	10.4
California	.....	.....	.....	7	10.2	11.1

EXTRACTS FROM CORRESPONDENCE.

GRASSHOPPERS IN UTAH.

San Pete county, Utah.—Since my last communication this section has been revisited by vast herds of locusts. They have come from all quarters, north, south, east, west, in addition to many millions hatched out from last year's eggs. They appear to concentrate their efforts against this settlement, to the relief of the surrounding ones. So determined has been the war which they have waged upon our small grain that our whole cereal crops will not exceed 250 bushels in place of what we calculate would, under ordinary circumstances, have been at least 20,000 bushels. Corn, potatoes, and garden vegetables have suffered more or less from them, and, in many cases, choice fruit trees have been stripped of both leaves and fruit by the locusts, while other varieties of the same fruit have been passed over. This has been especially the case with "English currant" trees, which have been almost universally stripped, while the wild varieties of the same fruit, transplanted from their native soil, have been let alone.

The locusts have, same as last year, deposited vast numbers of eggs, and we anticipate similar results from their young as suffered from last year's deposit. Our most experienced farmers think it wisdom to sow large quantities of grain this fall, which will be done as far as practicable. This will necessarily destroy, or at least disturb, many of the eggs, and thus lessen the brood for next year.

STRACHIA HISTRIONYCHA.

Buckingham county, Virginia.—I herewith send a box containing a number of living insects; that is, I start them alive, and hope they may reach your entomologist in good health, not losing their appetite for cabbage. These voracious insects made their first appearance in this section about the 1st of October last year, and reappeared about the 1st of September this year, and have totally destroyed all the cabbage in every garden where they have made their appearance. Our farmers usually set out from 500 to 1,500 plants, according to the size of their families, and many of our gardens are now as bare of cabbage as if we had never set out a plant.

[The insects sent are a species of field bug, *Strachia histrionycha*. The Department has also received them from North Carolina, where they were very abundant, destroying cabbage, &c. They pass the winter in the perfect state under bark of trees, under stones, moss, &c., where they may be found in early spring, and destroyed before they have had time to lay eggs for new broods.—T. G.[

GRAPES, HOPS, AND WOOL IN CALIFORNIA.

Mendocino county, California.—You will perceive that I have set down grapes and hops at a very high figure; this is owing to the fact that these branches are in their infancy, and, it might almost be said, this is the beginning of the enterprise. The prospect now is that but a few years will elapse before hops and wool will become important articles of export from Mendocino county. The valley lands are particularly adapted to their cultivation and abundant yield. The experiments heretofore made have given great encouragement. The wool-growing business is also becoming of great interest. Our extensive mountain ranges appear to be favorable for the healthy growth of sheep. These hills are covered with a rich fine grass, upon which they thrive. Several of our sheep-raisers have imported, and are constantly importing, into the county, bucks of the finer kinds, from which the original stock is being improved, most of the

present herds being half-breeds of the common stock crossed with such as the different sheep-raisers believe to be the greatest improvement. As the business of importing continues of course it will require but a few years to obliterate all traces of the old stock. But while some are embarking so extensively in these branches, there has been no diminution, but a large increase, of other agricultural products; the system of cultivating the land is being improved, and the yield of wheat and barley, which are the staple crops, is correspondingly increased.

WHEAT CROP IN SOLANO COUNTY, CALIFORNIA.

Solano county, California.—The wheat crop in this county this year is immense. According to our assessors, we have harvested 74,989 acres of wheat, averaging thirty bushels to the acre. Wheat is our staple, and Solano now leads the other counties of the State in its production. The principal varieties raised are Australian and Club, some Chili, and very little Sonora. This immense crop is transported in wagons and by railroad to the various shipping ports of the county on the Sacramento river and Suisun bay, and is then carried by sloops and schooners to San Francisco, with the exception of that which is carried to Vallejo by rail, which is loaded on shipboard at the Vallejo wharves, bound direct for Liverpool.

CROPS IN OREGON.

Marion county, Oregon.—This has been a most remarkable year. We had a severe snow and sleet storm and very cold weather in January, which injured wheat and rye, and killed a large amount of fruit trees. The spring was cold and cloudy, but fine crops of spring grain were sown. Gardens were put in early. On the 7th and 9th of May we had snow, killing frosts, and ice one-half inch thick. Nearly all the fruit in western Oregon was killed; gardens the same. The cool, wet, and cloudy weather continued till July 1st, when suddenly clear and excessively hot weather ensued, and mostly continued till the time of my letter now being written. There was a slight frost on the 1st day of August. On the 7th and 9th of September we had severe killing frosts, and ice one-half inch thick; gardens and corn are greatly injured. The yield of grain is large, and there is quite a brisk demand for all our oats at 40 to 45 cents, and wheat at from 75 to 90 cents, cash. Hay crops are very light; the streams are lower now than at any time for 40 years. Immense destructive fires are raging and have been for six weeks past in the Cascade and Coast mountains, running down into the valleys, and doing great damage to timber, farms, &c. Often the smoke is so dense that persons can scarcely see to attend to ordinary outwork. Candles are burnt in the houses nearly all day. Not one-fourth inch of rain has fallen since July 1st, and the wind has set from north to northeast all the time, and there is no indication of a change. The dust is intolerable; no ploughing can be done; pastures are dried up, and, taken all together, we of Web Foot have never seen such another season here.

RICE AND SUGAR CROPS IN LOUISIANA.

Plaquemines Parish, Louisiana.—I have to report that the rice crop of this parish has been gathered in good condition. It is certainly the largest and best ever made here. I am within the bounds of truth in stating that our farmers will this season ship to market over 25,000 barrels of clean rice; a barrel holds about 230 pounds of clean rice.

The storm of the 2d and 3d instant injured our cane fields but slightly; under favorable conditions our sugar crop will probably reach 10,000 to 12,000 hogs-

heads. As you will see by the annexed table, showing the date of first frost, the winters here have been unusually mild the last three years:

1849	November 26.	1859	November 12.
1850	November 17.	1860	November 10.
1851	November 6.	1861	None.
1852	November 27.	1862	October 27.
1853	October 25.	1863	November 30.
1854	November 15.	1864	November 22.
1855	October 24.	1865	None.
1856	December 8.	1866	None.
1857	November 19.	1867	None.
1858	November 9.		

Last year the winter was so unusually mild that the sugar cane bloomed in some of our more favorable localities, which had not occurred here since 1842.

Last year our trees were weighed down with oranges; this year they have scarcely any. Cause, the same disease which made its appearance in Florida about the year 1840.

BUTTONWOOD BUSH.

Randolph county, North Carolina.—The Randolph Agricultural Club directs me to request the Department at Washington to propound the querry in circulars, monthly reports, or otherwise, "How best shall we get rid of the buttonwood bush, that is such a great pest in our natural or wet meadows?" It would be very desirable to know the most practicable means by which the farmer could get clear of the bush in question.

[Cut it down, spring, summer, and fall, until by continuous cutting it will become exhausted and die.—ED.]

PINDARS.

Onslow county, North Carolina.—The Pinder pea is quite a full crop this year, and is largely planted in our county in many localities to the exclusion of cotton. There is an extensive belt of land lying on Brown sound, Stump sound, New river and other localities, that is peculiarly adapted to the growth of this pea, and is planted to the entire exclusion of cotton, yielding from 50 to 75, and in many instances as many as 100 bushels per acre, worth the past season from $2 to $4 per bushel, besides fattening a large quantity of pork. Where the land is adapted to the growth of the Pinder pea they will yield from 50 to 100 bushels per acre, and each acre can, after the crop is housed, fatten 10 head of hogs without other feed.

PRODUCTIONS OF KANSAS.

AGRICULTURAL ROOMS,
Topeka, Kansas, October 15, 1868.

DEAR SIR: Upon the 6th instant I forwarded to you by express a box of cereals and fruit from our State fair, trusting that you will deem it a worthy contribution to your Department. It is generally conceded east that Kansas is a good stock and grain-growing State, but, to our prejudice, an erroneous idea prevails that we cannot raise fruit. I sent you a variety of autumn and winter

apples, and the same of pears, the season of peaches and grapes being over, though we were favored with magnificent crops of each.

Respectfully yours,

H. J. STRICKLER,

Secretary Kansas State Agricultural Society.

Hon. HORACE CAPRON, *Commissioner, &c.*

[The box referred to came to hand, and the specimens sent will be placed in our museum to the credit of Kansas. The fruits included in the collection are fully equal to those of more eastern production, and serve to disprove the impression that Kansas cannot grow fruit successfully.—ED.]

ILLINOIS CROPS IN 1867.

Our Hancock county (Illinois) correspondent supplies the following figures, taken from returns made to the auditor of the State:

Whole number of acres in wheat	1,978,588
Whole number of acres in corn	3,970,218
Other products	1,535,236
Total average	7,484,042

Best ten wheat counties in the State: St. Clair, De Kalb, Bureau, Ogle, Henry, Lee, Adams, Hancock, Whitesides, and Sangamon. Best ten corn counties: McLean, Sangamon, Knox, Hancock, Henry, Warren, Tazewell, Vermillion, Adams and Fulton.

CORN.

Madison county, Iowa.—Corn injured by frost in September.

Brown county, Indiana.—The recent heavy rains have kept corn from ripening; it is quite green and in danger of frost.

White county, Indiana.—Our corn and buckwheat crop was universally promising until damaged to a considerable extent by a severe frost on the morning of the 17th of September. It is impossible yet to estimate the full extent of mischief done to the corn crops.

Posey county, Indiana.—Owing to the wet spring, corn was late in being planted, and most of it is greener than usual. With a late fall the crop promises a little more than an average; an early frost will make it short.

Jasper county, Indiana.—Frost on the night of the 17th of September hurt our corn to some extent.

Kankakee county, Illinois.—The frosts of Wednesday and Thursday nights last has done no damage to corn in Kankakee, Iroquois, and Ford counties. The corn crop in this section of the country is the largest I have seen for 20 years. In Ford and Iroquois counties there is a very large increase of acreage.

Putnam county, Illinois.—Corn is not as good as in 1867, on account of the frost, but the product will far exceed that of last year.

Henry county, Ohio.—Oats very light; poor yield; cause, dry weather. Corn, greater breadth planted; quality inferior. Late planting and early frost.

Washington county, Ohio.—The weather has been so wet during the months of August and September that it has injured grain and hay in the stacks; also beans and corn fodder, and perhaps some corn in the shucks.

Mason county, Michigan.—The dry weather in the early part of summer has affected our crops all over the county; some will not husk their corn.

Athens county, Ohio.—Our corn crop falls far short of our August prospects; injured by drought and grasshoppers.

St. Croix county, Wisconsin.—Corn is a superior crop.

Lewis county, Washington Territory.—Heavy frosts on the night of the 11th instant, injuring corn.

Polk county, Iowa.—We are grievously disappointed in our corn crop. We have more acres by 40 per cent., and never had a better promise for the heaviest crop per acre until the early and most terrible frost of the night of the 18th of September. At first it was supposed the damage would not be very great; it now proves that two-fifths of the entire crop is unripe, and unfit for market or shipping.

Washington county, Nebraska.—Corn is good; some of the late is somewhat injured by frost, still we will have a large yield. Corn is selling for from 50 to 60 cents per bushel; oats from 40 to 50 cents per bushel.

Prairie county, Arkansas.—Our corn crop, early and late, is matured, and will be the largest since 1862, nearly doubling the average crop.

Drew county, Arkansas.—Corn is now being gathered; a very large proportion is unsound.

De Kalb county, Missouri.—Corn, which early promised a large yield in some localities, is not over 50 per cent. of the yield promis d June 20.

Spencer county, Kentucky.—The corn and sorghum are very green, and much has been prostrated by wind and rain and is suffering.

Anderson county, Kentucky.—Corn has fallen down to a great extent and probably damaged considerable; but the crop in this county will be better than any since 1855.

Russell county, Kentucky.—After making deductions for all injured corn and oats we will yet have more than for 20 years.

Fayette county, Tennessee.—The corn crop is being very much damaged by the wet weather. The cob of the ear at the butt-end is rotting, and the grain sprouting, and in some sections great apprehensions are felt for a sufficiency of bread for the coming winter; some persons turn down the stalk at the point first below the ear, so that the shucks that envelop the grain will shed the water.

Pike county, Mississippi.—The corn crop has matured, and to a great extent gathered; it is the best we have had for years.

Spartansburg district, South Carolina.—Corn is exremely fine; market expected to open at 40 to 50 cents.

Franklin county, North Carolina.—The corn crop as compared with 1867 is very good; on high land the yield will be one-third larger than in 1867, and but for the entire destruction of the crops on the river it would have been double.

Bertie county, North Carolina.—The long drought in early summer cut short all the early corn from one-third to a half crop; in this and adjoining counties of Norfolk and Currituck it will be much shorter than estimate in the report for September would indicate.

Kanawha county, Virginia.—Corn exceeded all expectation for quantity, but the late rains have done considerable damage.

Clark county, Virginia.—A protracted drought has prevailed in this county since the last of May until the rains set in in September; corn is almost a perfect failure in certain portions of the county.

Putnam county, West Virginia.—The spring at the usual season for planting corn was very wet, so as to cause late crops and in many instances to reduce the quantity which farmers intended to plant; then the critical season for it, July and early in August, was very dry. Now, and for a few weeks past, when dry weather would mature and save the crop, we are and have been suffering from most unprecedented rains. I have never known autumnal rains to do anything like the amount of damage to corn which they have recently done.

Henrico county, Virginia.—Corn mostly cut and found to be very fine.

Adams county, Pennsylvania.—Corn better than I have known for years.

Baltimore county, Maryland.—The corn crop is magnificent; a full average can be stated.

Queen Anne county, Maryland.—Our corn is generally very light; but on some high, dry, and improved land there are good crops. Public opinion estimates the crop at only half an average, but I have placed it at a seven-tenths.

Morris county, New Jersey.—Corn crop is better than for many years.

Indiana county, Pennsylvania.—The corn and buckwheat in this county will not, on an average, make more than six-tenths of a crop; this is on account of the dry season. Buckwheat was somewhat shorter by the untimely frost.

Amelia county, Virginia.—Upon more careful inquiry we have been led to change our figures for the corn crop. It is better than last year so far as concerns ripeness and size; but the horned worm has been more numerous than for any year since the war, and our labor being insufficient, we have been unable to get them caught as of old, and whole fields have been eaten almost entire.

Norfolk county, Massachusetts.—There was a heavy frost about the middle of September which injured considerable corn; at least half the fields have not been topped; much of the corn fodder is worthless.

COTTON.

Sampson county, North Carolina.—Cotton very much injured by rust and army worm; the latter began its ravages much earlier than in previous years, say 1st of September this year, and the 15th heretofore.

Gaston county, North Carolina.—Excessive rains will shorten the cotton crop at least 10 per cent.

Bertie county, North Carolina.—Cotton has been very much damaged by a damp, cool spell, which came about the 10th of September, causing it to shed all the forms and many young bolls, at least all that came in September. Since that time the rust and caterpillar are doing much damage, making it open before it is grown.

Franklin county, North Carolina.—The cotton crop was injured by wet weather in August and September. The yield will not be as great as it was in 1867, though the profit to the farm will be greater, less having been paid for guano and other fertilizers.

Newberry district, South Carolina.—The caterpillar has made its appearance for the first time this season; whole fields are entirely stripped of leaves, and in many cases the young bolls have been cut off. Neither blossoms nor young bolls mature after the worms make their appearance. The crop must be shortened fully one-third.

Abbeville district, South Carolina.—Since my last report the army and boll-worm have attacked the cotton and damaged it severely. The cotton, in consequence of an unfavorable spring, was late, and therefore more exposed than last year to the ravages of the worm.

Spartansburg district, South Carolina.—Cotton has improved since my last report, but the worms are eating all the small bolls.

Butts county, Georgia.—The caterpillar worms made their appearance in this county about the middle of September, and in two weeks had destroyed the leaves on most of the cotton stalks. Such a visitation of these worms never occurred here before. We estimate six-tenths of a crop, as compared with last year.

Emanuel county, Georgia.—The rust and army worm have laid waste our cotton fields since my last report. Not satisfied with the total destruction of leaves, they have attacked the young bolls with equal success. Our fields look as if a fire had swept over them.

Columbia county, Georgia.—Since my last report the worm and caterpillar

have played havoc with the cotton; none have escaped, and we cannot expect over half as much as last year, and it will all open by the 15th of October.

Troup county, Georgia.—The rains, together with the devastation of the caterpillars, have nearly destroyed the cotton crop for this county. One-half will be a very safe calculation.

Baldwin county, Georgia.—The cotton crop has been very severely injured during the past month by the caterpillar; whole fields of young bolls destroyed in a week's time, so that the last crop is cut off. I have farmed here for thirty years, and have never seen such destruction in this county.

Hall county, Georgia.—Cotton is being very much injured by worms.

Tatnal county, Georgia.—Since my last report of the condition of the cotton crop, a disastrous change has occurred. The caterpillar has made its appearance, and its ravages are unprecedented; the entire crop on many plantations has been swept away.

Morgan county, Georgia.—The cotton crop will be exceedingly short. The army-worm is making sad havoc in all parts of the country, stripping off the blooms, squares, and unmatured bolls. The corn crop is also very short. These failures are having a tendency to make our farmers turn their attention to other things, which in this mild, genial climate is a thing very much to be desired. We want a complete system of mixed farming, and the plantations reduced so that they will not average over 300 acres.

Heard county, Georgia.—The crops in our county will be short, especially cotton, the worms having destroyed all the late crop; they are doing more injury than I have ever known in this part of the State.

Taylor county, Georgia.—Since my last report the cotton crop has been seriously injured in every part of the county. Not a single farm has escaped the ravages of the caterpillars. They made their appearance about the 5th of September, and in a very few days they were seen in every cotton patch in the county. They are not of that species of worm that travel from one farm to another, but each farm seems to have produced its own stock. When first seen they were very small, and in five days they were full grown. When full grown they are about one and one-fourth inch in length and about the size of an oat straw in diameter. They appeared in sufficient quantities in most places to strip the cotton stalks of all the leaves, forms, and small bolls within five or six days from their first appearance.

After these caterpillars have attained their growth they web up and fasten themselves to the limb of the cotton stalk. In a few days a hard shell encloses them and turns back, and within a few days more, say six or eight, they hatch out a small butterfly, a little lighter than lead-color. They resemble, very much, what is known with us as the candle-fly. At this time there are in all the cotton fields in this section millions of these butterflies.

In many instances these caterpillars made their appearance in such numbers that a cotton field would be stripped of its leaves in the short space of two days. They then attacked the bolls, destroying all that were not well-nigh matured, by eating off the hull that encased the cotton. The result is that our crops of cotton are materially shortened and the cotton is opening very rapidly. The leaves having all been destroyed the sun has full power on the bolls, which hastens them to maturity, and the leaves being destroyed the stalk is fast drying up, which will cause the cotton to open prematurely. It is safe to state that, if the weather continues favorable for gathering, the entire crop will be gathered by the last of October, and in market soon thereafter.

[The worm referred to is the cotton caterpillar, *Anomis Xylinæ*.—T. G.]

Crawford county, Georgia.—The decrease, in this report, of cotton has been occasioned by rain, which caused the plant to throw off its forms, and by the attack of the caterpillar and boll-worm, whose combined devastation is unprecedented in this county.

The caterpillar strips the stock of all its foliage, squares, blooms, and bolls below the size of half-grown, and the calyx from the grown bolls. At present we cannot accurately determine the loss occasioned by them.

Clay county, Alabama.—The army-worm has entirely stripped our cotton. Not a leaf or young boll remains, which will cut off the yield considerably. We cannot possibly realize over half a crop.

Montgomery county, Alabama.—I fear our cotton is damaged by the early visitation of the cotton caterpillar more than three-tenths below the average of last year. Fall unfavorable for gathering; more rain than usual.

Opelika, Alabama.—Cotton-worms appeared on the 10th of September, and by the 17th whole fields were leafless. Near houses, chickens and hogs ate the worms greedily without injury to the plants, and might be a complete remedy, if in sufficient numbers to go over the fields. By the end of the month the worms were gone, and the damage seems less than was feared.

Greene Springs, Alabama.—By the 25th of September the army-worm destroyed every green leaf and young boll of cotton, reducing the crop one-third or one-half.

Lawrence county, Alabama.—Cotton has been injured by the late rains, and also by the caterpillar. In some sections the caterpillar has destroyed half the crop.

Baine county, Alabama.—The army-worm has eaten all the leaves off the cotton and some of the young pods; the extent of injury is not fully known yet.

St. Clair county, Alabama.—Cotton promised over an average in this section, but has been cut off perhaps one-third by the army-worm.

Marshall county, Alabama.—The boll or army worm has made its appearance in this locality. It is very destructive, first making its appearance about two weeks ago, eating off the leaves, and they have now commenced eating the young bolls. If they continue as they have begun the consequence will be but little over half a crop. There will probably be about 2,500 bales raised in this county this year, if the army-worm is not too destructive.

Conecuh county, Alabama.—The cotton fields have been stripped of every leaf for the last ten days, and one would think that it was dead winter to look at a cotton plantation in this section of country. Not one field or plantation has escaped their ravages, and it is a well-conceded fact that there will not be more than a half crop made, and I doubt very much if that much.

Leake county, Mississippi.—The cotton will not be more than half a crop, owing to boll-worms and caterpillars, together with heavy rains, which have caused the cotton to rot.

Winston county, Mississippi.—The worms and rain have pretty well destroyed the cotton crop.

Attala county, Mississippi.—Cotton was never poorer; eaten up by boll-worms and caterpillars; can't make more than half a crop.

Washington county, Mississippi.—The average condition of the cotton crop in this county is about seven-tenths. The rains and the worms have damaged it during the month.

Amite county, Mississippi.—Acreage of cotton much less, but far superior to last year in yield.

Pike county, Mississippi.—I have reduced my estimate of the cotton crop, in consequence of the ravages of the army worms. They have appeared much later and in less numbers than last year, and their ravages have been partial, one plantation being affected while an adjoining one entirely escapes. One part of a field would be destroyed, while another would not be affected. They made their appearance about the 5th of September, and webbed up in some 20 days. There is 25 per cent. less acreage this year than last, but the crop is 25 per cent. better.

Union parish, Louisiana.—Cotton, as compared with last year, will be fully 25 per cent. better.

Jackson parish, Louisiana.—The cotton-worm has now finished eating all the cotton leaves, (the leaves were all eaten one month earlier last year.) I think this parish will make one-third more cotton this year than it did last. It will all be in market by the first of December. Freedmen have worked much better this year than last.

Washington county, Texas.—Cotton is cut very short by the worm. Early in the season the prospect was very fine. Just now it is impossible to say what the crop will be. If we do not have frost early there will be a very fine crop made. On some land planted early the yield will be one bale of 500 pounds per acre, while on some late there will not be 200 pounds clean cotton. All the early cotton will give a fine return.

Henderson county, Texas.—The worms have injured cotton but little this season, and though there was not as much cotton planted as last year, there will be about the same quantity made.

Dallas county, Texas.—This is the first year of raising cotton in this county, and the yield will be about a bale to the acre; about 2,000 bales in the county; condition good.

Independence county, Arkansas.—The continued rains threaten to ruin the cotton crop; bolls rot without opening; condition exceedingly critical.

Cross county, Arkansas.—For the last ten days we have had a good deal of rain, which has damaged both corn and cotton.

Prairie county, Arkansas.—The extremely wet season has injured the cotton crop, and if continued the crop will be below that of last year.

Drew county, Arkansas.—The condition of the cotton crop has declined 20 per cent. since my last report. There has been an unusual fall of rain for this season of the year, the rains being succeeded in almost every instance by long spells of cloudy weather, preventing the drying off of the open and partly opened bolls before they rotted. The bottom and middle crops, which are always the main reliance, are greatly injured from this cause. The caterpillars, too, have appeared and eaten the cotton foliage upon some farms, thus damaging the top crop. Their depredations, however, have not been very injurious, and in some cases they are thought to have been beneficial, as by stripping off the leaves they gave a fair show to the little sunshine we have had upon the bottom and middle crops.

Fayette county, Tennessee.—It is difficult at this particular time to give an approximate estimate of the cotton yield. It has been raining and misting for nearly three weeks without one entire day's intermission; and when such has not been the case it has been cloudy and cool and cold, the most unfavorable conditions of weather for cotton at this period of the season, when it requires constant dry, warm sunshine to mature the crop. Wet or damp weather favors the worm in its ravages, and rots the lower bolls. The crop has been materially damaged up to this time. Six weeks ago it was in better condition and promised a better yield than any crop since the war. Should the present unfavorable weather continue a short while longer not more than a half crop for the acreage can be hoped for. Such as has been picked is so stained and damaged that it will materially affect its price.

Giles county, Tennessee.—Since my last monthly report we have had almost incessent rains, causing the cotton bolls to rot and fall off. It is impossible to make over three-fourths of a crop.

Davidson county, Tennessee.—I have just returned from a trip through northern Alabama and northern Mississippi, and the western and middle districts of this State. The indications denote a much larger yield of cotton than was supposed, despite the long continued rains. The bolls were opening freely,

especially in the uplands, and should the present fine weather contine a few weeks you will have a larger crop to report than last year.

POTATOES.

Norfolk county, Massachusetts.—Potatoes as yet will bear an average mark, but much now depends upon the rot.

Berkshire county, Massachusetts.—Potatoes suffered much from the dry weather. The crop will fall short of that of last year. In a few instances the rot set in in September and materially injured fields where it prevailed. Buckwheat indicates an improvement on last year.

Hudson county, New Jersey.—At our stock fair the farmers all report good crops of corn and wheat, very little fruit, and extensive rot in potatoes, all attributing the latter to the excessive rains of the past season.

Indiana county, Pennsylvania.—Potatoes are a short crop, and are not good in quality.

Elk county, Pennsylvania.—The potato crop has improved wonderfully in this county. At first it was thought to be a failure, but rain came and increased the growth very much—not many under a hill, but what are there are very fine; in low bottom land a few cases of rot are noticed. This last wet time has told hard upon buckwheat.

Morris county, New Jersey.—Potatoes yield well and rot but little.

Clarke county, Virginia.—Late potatoes, except under straw, have failed entirely.

Greene county, Missouri.—Since August 29 we have had heavy rains; the late planted potatoes will make a fine crop.

Hall county, Nebraska.—Corn and potatoes would have yielded well, had it not been for the grasshoppers; they have been worse this year than ever, but they have deposited no eggs. These grasshoppers, I fear, will cause famine eventually, if they are not destroyed soon. I have watched them for nine years; they are increasing to an alarming multitude.

Ford county, Illinois.—Potatoes are growing faster now than at any other time this season, and bid fair to be an average yield.

Oakland county, Michigan.—Frost on the 16th of September that killed potato tops and corn-fodder in many localities. The damage to the potatoes will be considerable, as they are late.

St. Croix county, Wisconsin.—Potatoes badly injured by the ten-lined spearman.

Columbia county, Wisconsin.—The potato crop in this county is much less than usual, some fields being almost entirely destroyed by the potato bug, (ten-lined spearman.) Other fields, where "eternal vigilance is the price of potatoes," were saved, and a fair yield obtained. I had one of the best crops I ever raised in this State, when in an adjoining field they were not worth digging.

Waushara county, Wisconsin.—The potato bug made great havoc with the potatoes, but since the late rains they (the potatoes) have improved considerably; will have some good ones, but more bad ones.

WHEAT EXPERIMENTS.

Coffee county, Tennessee.—I received from your Department in November, 1866, five quarts of the Tappahannock wheat, four of which I sowed, and harvested enough in 1867 to produce 63 bushels in 1868, of superior quality. I think it the most desirable varieties in this section. Its vigorous growth, hardiness, early maturing, freedom from smut and rust, and superior quality and yield of flour, all recommend it to our farmers.

Dutchess county, New York.—The Tappahannock wheat received from the Department last fall did not fill, there being no grains in the heads.

Berrien county, Michigan.—Last year I received three varieties of wheat from the Department—Tappahannock, Tasmania, and Chiddam—the quantities being equal. I sowed them side by side, the Chiddam in the middle. The Chiddam was completely destroyed by the weevil, while the other varieties were not injured in the least. The Tappahannock and Tasmania made a very fair yield. I think the Mediterranean is ahead of anything that has been imported for many years.

Nashville, Tennessee.—The Tappahannock wheat has had a favorable test in this section. Last season one farmer in Maury sowed 120 acres, from which he had an average yield of about 30 bushels to the acre.

CATTLE DISEASE.

Vernon county, Missouri.—Our best cattle are dying with Spanish fever, and there are fears that one-fifth of the cattle in this county will be destroyed by this plague the present season.

Chatooga county, Georgia.—The cattle in this county have suffered much from "murrain" or "Spanish fever." No cause properly ascertained, and no remedy successful. The pasturage is unusually good, yet the mortality is much greater than last year.

Kankakee county, Illinois.—In this portion of Illinois, where the Texas cattle have been allowed to graze, the native cattle have died in large numbers. I think the State has lost this year, in consequence of the introduction of Texas cattle, not less than one million dollars.

Gordon county, Georgia.—The murrain or distemper has been very fatal among the cattle this season, two-thirds of those attacked having died. The fly has also been very bad on cattle and horses.

HORSE DISEASE.

Rio Grande, Cape May county, New Jersey.—Early in September a distemper, like black tongue, prevailed among horses in this county. About 20 high grade animals died in the vicinity of Goshen, in two or three days after being seized.

BEES.

Washington county, Iowa.—Mrs. Tupper writes that the past season has been the poorest ever known for bees. In some of the best honey regions, like southern Illinois and Missouri, thousands of colonies have starved to death already. In no part of the northwest has there been an average yield of honey. "I have received over one hundred letters within a month, all telling the same story; and yet, have not heard of a single Italian colony that has failed to gather sufficient winter stores, and some have even stored a surplus when black bees side by side with them have done nothing."

SECOND CROPS OF FRUIT.

Sulphur Springs, Rhea county, Tennessee.—Owing to the wet season, or from some other cause, our strawberries have this year produced two crops.

Morris county, Kansas.—Indian summer commenced September 26. Apples and Siberian crab are in fresh bloom and set with new fruit. Pasturage fresh as in May, owing to abundant rains.

PROTECTION OF ORCHARDS FROM MICE.

Buffalo, New York.—It is well known that young orchards throughout the northern States are partly and sometimes wholly destroyed by mice, especially when the snow lies deep for any length of time. Many remedies have been applied, but few if any prove an effectual preventive. I propose to take a strip of tarred paper, such as is commonly used for roofing purposes, say 18 to 20 inches long and of sufficient width to wrap around the tree twice, taking care to remove the earth a little, so as to get the paper well down. Tie the paper in two places with a string, return the earth up to the paper, and you may then feel sure that the tree is safe from harm. The paper should be taken off in the spring and laid away for future use. The paper will last several years, as time and weather appear to affect it but little, and the expense is small in comparison to the advantages to be gained.

THE "SPANISH FEVER.'

The human mind—perhaps especially the American mind—has a tendency to act spasmodically, and to foster periodical excitements, as well upon industrial topics as in social or political matters. The recent prevalence of the "Spanish fever," or "splenic fever" of Professor Gamgee, at certain railroad stations of the west, and in a few of the eastern cattle-yards in which western cattle are received, affords a good illustration of this fact. For twenty years, at least, have the Gulf-coast cattle been brought northward, and during all that time have native cattle herding for a time with them, or feeding over their trail, sickened mysteriously and died almost inevitably if the migration occurred in the heat of summer, but not otherwise. The cases have not only been multiplied season after season, but they occur with such uniformity and regularity that they are expected with the coming of every southern drove, in the proper season, and under the usual circumstances. Whatever the latent cause, however the infection is communicated, the connection of these migrating herds with the malady is so patent to common observation, so fully pointed out by a mass of facts, that one's reason and common sense are stultified by a denial of the evident fact that these incoming cattle are in some way the cause of the sickness. Veterinary surgery may be nonplussed, but the *facts* remain unexplained. Medical men may say it is impossible for apparently well cattle to cause fatal sickness to others, and yet exposed animals sicken and die without remedy, and no adequate or even plausible theory in avoidance of the unwelcome conclusion is proposed. Were there no mysteries that medical science still leaves unfathomed, and were its postulates in every case made the subject of a demonstration mathematically complete, the bare assertion of the impossibility, without proof, might be accepted. Thus while distant doctors ignored the disease, and herdsmen in Illinois cared nothing for the losses of their brethren in Missouri, a change in the mode of travel brought the Texas droves directly into the heart of the west, and even into the stock-yards of the east, when straightway a panic arose which struck at once boards of health, railroad officials, and State executives, and filled the columns of newspapers with vague and baseless apprehensions and theories, creating excitement and alarm, reducing beef consumption, and bankrupting the astonished drovers. The panic has subsided as rapidly as it arose; the disease could not spread beyond the animals infected, with a decent cleanliness in cattle trucks, and in no event beyond the animals actually transported; and a seclusion of southern from western cattle instantly stayed the progress of the disease.

That the importance of the subject is not overlooked by this Department is shown by the repeated investigations undertaken in former years, and in the

prompt appointment of a medical commission during the recent outbreak, the report of which is now almost ready for publication; but it cannot give its countenance to spasmodic and unreasoning excitement which may do as much injury as the disease itself. While writers for our press, and in some cases agricultural editors, have so misunderstood some of the most palpable facts of the malady, it is not strange that foreign governments should promulgate and act upon similar misapprehensions. The following, relative to restrictions upon the importation into Great Britain of American hay, is from the London Agricultural Gazette:

> Then there is the extraordinary story respecting the communication of the American malady by the Texas cattle, who are not themselves affected by it. Such peculiarities are wonderfully interesting to scientific pathologists, but breeders and feeders of stock will be more comforted by the assurance that precautions have been taken to prevent their herds from becoming acquainted with such morbid oddities. Rumor, in short, gives a bad character to Texas or Spanish cattle-fever, and it is not upon us that the onus lies of clearing its reputation from unjust aspersions; we speak with the full conviction that every stock-owner in the country will accept our sentiments as his own when we say that good reason existed for the order which was passed on Tuesday last, restricting the use of American hay to animals that are not likely to be harmed by it. As Liverpool is a great mart for hay for horses, no great hardship is inflicted upon the hay trade, and a possible source of danger to our cattle is removed. Something was required to be done beyond merely waiting to see what might happen. The veterinary department of the privy council was bound, as we heard it expressed, to allay the alarm by an assurance that it was groundless, or tacitly to admit the danger, and advise the adoption of proper means to avert it. In choosing the latter alternative the executive has, we believe, acted wisely.

In view of the probability that there is not a ton of hay for sale in the United States that could infect a single animal, and to the further apparent certainty that such case, if it should exist, could not communicate the disease to a second animal, the absurdity of this restriction, and the fear which caused it, is strikingly manifest.

The Mark Lane Express of October 5 has a quotation from remarks of Lord Montague, at an agricultural meeting, which is full of the most extravagant misapprehensions. One of many is thus expressed:

> The disease which has been ravaging that great continent during the present summer was similar in all essential points to the cattle plague which ravaged this country in 1866. Its highly contagious nature, the great rapidity of its spread, its fatal character, and the speediness of death in almost every instance, will be recognized at once as facts of our own experience. The cattle plague is indigenous in Texas, just as the rinderpest has its home in the steppes of Russia.

This disease is not at all like rinderpest; it is not contagious; it does not spread at all, the virus being limited to one "generation," instead of passing through animal after animal without diminution of infecting power; and the active form of the disease, instead of being "indigenous in Texas," is not known there, though Texas animals appear to communicate it.

The report of Professor John Gamgee, of the Albert Veterinary College, England, who spent several weeks in Indiana, Illinois, Missouri, and Kansas, in careful investigation among diseased native animals and Texas herds, and in post-mortem examinations of both kinds of stock, is nearly ready for publication. Answers to specific inquiries relative to this season's outbreak are coming forward to add to the mass of facts illustrative of the subject. Chromo-lithographs of the spleen and other organs will illustrate the report if an appropriation is made by Congress for that purpose. All this matter will be presented to Congress at the approaching session for publication in such form as that body may authorize.

INDIAN AGRICULTURAL EXHIBITION.

A correspondent who was present furnishes an account of an exhibition made by the civilized red men of New York:

On the 30th day of September, and the 1st and 2d of October, the ninth annual exhibition of the Iroquois Agricultural Society was held on the Cattaraugus reservation, Cattaraugus county, New York, near Versailles.

The Indians of the State of New York are the remains of the several tribes which once formed the powerful confederation known as the Six Nations. To the thoughtful observer, this, their annual fair, was an event of exceeding interest and of great significance. While the cry of "extermination" is heard, not only from the brutal, mercenary, and unprincipled, but from the lips of men in high positions and of otherwise humane disposition, it is suggestive to behold such an unanswerable argument of the capacity of the red men for self-support and for civilization.

The Cattaraugus reservation contains about 52,000 acres, and a population of about 3,000. Upon it are a number of farms in a high state of cultivation, well fenced, well stocked, and partially worked by means of modern labor-saving machinery. The horses are, as a general thing, of superior character, and give evidence of great care, both in breeding and training.

The Agricultural Society own a well-situated fair ground, with a building for the exhibition of vegetables, fruits, and domestic articles, and an excellent track for trials of speed. The extent and character of the exhibition were far beyond the anticipation of the writer. Not only was there a variety of articles, but the character was generally superior. There were corn, beans, potatoes of fine size and various kinds, such as Peach-blow, Clinton, Meshanock, &c., beets, pumpkins, and peas, apples, peaches, pears, quinces, plums, and grapes, bread and cake, beadwork of exquisite patterns, beautifully embroidered needle-work; butter as nice as could be desired; honey, fowls, Chester hogs, of great size; Merino sheep, young steers, yoked and driven by boys; more than thirty milch cows, calves, bulls, oxen, mares and colts, some of the colts being of great size and beauty, doors, window-sash, boots, a straw-cutter, sled, maple-sugar, and other articles that were not noted. There were many samples of grain, such as red and white wheat, spring wheat, barley, and oats, most of it of superior quality.

It must be remembered that none but Indians are allowed to compete for premiums, and the above list comprises, therefore, the actual productions of their gardens and farms.

On the afternoon of the 1st of October, an address was delivered by Benjamin Hallowell, of Sandy Spring, Maryland, who had been invited to visit them for that purpose, which was listened to with interest and attention; and he was invited to write out his remarks for their more deliberate consideration.

Mr. Hallowell presented to the society 15 volumes of agricultural publications, and 64 choice packages of seed-wheat, that had been forwarded through the kindness of Commissioner Capron, with both of which they seemed highly gratified. The speaker explained to them that should this seed produce at the ratio of some fields near Rochester, during the present year, (40 fold,) the amount sent would, in the fifth year, reach 204,800,000 bushels, or more than sufficient to seed 3,840 reservations as large as Cattaraugus and Allegany together.

Some remarks were made by another gentleman present, encouraging them to plant trees and flowers and otherwise beautify their homes.

The attendance was very large, many citizens from neighboring counties being present. The only cases of disorder or intemperance noticed were among a few whites. The Indian girls and women (many of them of great personal beauty, and with fine manners) were dressed with taste, the garments all being of their own make. The affairs of the society are managed entirely by Indians, the secretary being Singleton H. Parker, an accomplished gentleman, and brother of Colonel E. M. Parker, of General Grant's staff. Nothing strikes a stranger with more force than the dignity of bearing and propriety of demeanor of these descendants of a warlike and rude people. They are industrious, ingenious, and some of them highly educated. It is true that there are occasional instances of intemperance and idleness, but these failings are not confined to our red brethren.

The exhibition described above gives abundant evidence of thrift and industry upon the part of many, whereas if only one should show such capacity for improvement, it is clearly the duty of a great and professedly Christian nation to endeavor to civilize the fast-fading and much-suffering races beyond the Mississippi. Not only would it be doing its duty in a manner worthy of the enlightenment of the 19th century, to these foster children whose lands we occupy, and adding to its wealth by converting consumers into producers, but it would be done at one-tenth the cost of the wars that are now desolating the frontiers and hardening the hearts of all who are brought in contact with these unfortunate people. As has been remarked by Rev. Asher Wright, a benevolent missionary, who has devoted thirty years of his life to the welfare of these Indians: "If the New York Indians could live and pass the crisis, and begin to thrive and to increase in population steadily and permanently, as shown by the reports of the Commissioner of Indian Affairs, by the census returns, and

by the message of the governor of New York, there can be no ground for the despairing of like results anywhere where kind treatment and honest regard for their rights can be extended to the Indian race for a sufficient length of time to give them faith in the permanence of such a policy."

The enlightening influences of agriculture have been one of the most efficient aids in accomplishing the much that has been done for the advancement of the Indians of New York.

EVILS OF LAND MONOPOLY.

The following just views of the cause of land monopoly occur in an address at the recent annual fair of the State Board of Agriculture of Nebraska, delivered by Major H. F. Brooks, of Rochester, New York, and heartily endorsed by the actual settlers of Nebraska, and warmly seconded by the secretary of the board, C. H. Walker, in a communication enclosing the address:

You have now in charge of your State 800,000 acres of land; that land is worth more than all the railroads you can build in 40 years. Whatever you do with it, require that it be passed at a low price and in limited quantities into the hands of actual settlers. Your strong point is cheap land. Every acre you pass over to speculators to be held for an advanced price is a clog on your prosperity.

If you would route the speculators, and offer your lands to actual settlers under the provisions of the homestead act, or at 10 shillings per acre, you would, within eight or ten years, have as dense a population as any agricultural State in this blessed Union.

God grant our legislators, State and national, wisdom to stop the whole system of land appropriation for public and private purposes. Hold every acre, as a sacred trust from Heaven for landless whose needs are their title to it, and who from the proceeds of their industry can and will build roads and make every needed improvement in half the time required under the present system.

AGRICULTURAL STATISTICS OF GREAT BRITAIN.

The following statement, made by the statistical department of the Board of Trade in September, gives the returns of acreage crops and numbers of farm animals:

Extent of land in Great Britain under—

	Wheat.	Barley.	Oats.
	Acres.	*Acres.*	*Acres.*
1866	3,350,394	2,237,329	2,759,923
1867	3,367,876	2,259,164	2,750,487
1868	3,646,260	2,149,201	2,753,240
1868 over 1867	*278,384 or 8.2 per cent.	†109,963 or 4.9 per cent.	*2,753 or 0.1 per cent.
1868 over 1866	*295,866 or 8.8 per cent.	†88,128 or 4.0 per cent.	†6,683 or 0.3 per cent.

Total number of live stock in Great Britain upon June 25.

	Cattle.	Sheep.	Pigs.
1867	4,993,034	28,419,101	2,966,979
1868	5,416,154	30,685,980	2,303,857
1868 over 1867	*423,120 or 8.5 per cent.	*1,766,879 or 6.1 per cent.	†663,122 or 22.3 per cent.

* Increase. † Decrease.

The amount of land in Great Britain under potatoes in 1868 was 539,554 acres, against 492,217 in 1867, and 493,843 in 1866.

The acreage under hops in 1868 was 64,488, against 64,284 in 1867, and 56,578 in 1866.

AGRICULTURAL STATISTICS OF IRELAND.

Mr. Donnelly, the Irish Registrar General, has made his usual annual report, from which we learn that the total acreage under all crops in 1868 was 5,547,335 acres; ditto, 1867, was 5,459,702 acres, showing an increase in the extent under crops in 1868 of 87,633 acres, which is thus accounted for: Compared with 1867 wheat increased by 25,757 acres, oats by 39,408, barley by 15,199, and bere and rye by 304 acres; beans and peas decreased by 3,582 acres; potatoes increased by 33,072 acres, mangel and beetroot by 270, cabbage by 8,753, and carrots, parsnips, and other green crops by 1,102 acres; meadow and clover increased by 33,462 acres. The crops which decreased in area in 1868 were turnips, by 15,662 acres; vetches and rape, by 3,638; and flax, by 46,811 acres; the net increase in the acreage under crops in 1868 being 87,633 acres.

The total estimated value of horses, cattle, sheep, and pigs this year was £34,098,742, being a decrease of £1,058,477, compared with 1867.

SALES OF SHORT-HORN CATTLE IN ENGLAND.

At the recent Killhow short-horn sale 66 head brought an aggregate of £4,445 14*s.*, or an average of £67 7*s.* 9*d.* Polly Gwynne, 15 years old, brought 28*gs*; Moss Rose, 10 years old, was started at 100*gs.*, and sold at 400*gs.* This cow has now been sold four times at 260*gs.* as a calf, and then successively at 245*gs.*, 230*gs.*, and now at 400*gs.* Turk's Darling brought 75*gs.*; Duchess Gwynne 180*gs.*; Princess 2d 300*gs.*; Princess 3d 330*gs*, (bought for 71*gs.* last year;) Oxford Lily 85*gs.*; Countess Gwynne 240*gs.* The average for 56 cows was £67 16*s.* 9*d.* Of the bulls, Royal Cambridge, three years old, brought 240*gs.*; Royal Cumberland, seven months old, 160*gs.*; Fop, 65*gs.* The ten bulls averaged £64 13*s.* 7*d.*

At the Scaleby sale 71 animals averaged £30 each. Of the cows, Elvira brought the highest price, 48*gs.* The 14 bulls averaged just 30*gs.*; the 14th Duke of Oxford bringing 71*gs.*, Duke de Morny 55*gs.*, and Duke of Edinburgh 40*gs.*

At the Beaumont sale 29 animals were sold; the 16 cows and heifers averaging £36 16*s.* 4*d.*; Royal Charmer 3d, seven months old, bringing 115*gs.*, and Duchess of Lancaster 110*gs.* The bulls ranged from 8*gs.* to 50*gs.*; Golden Duke selling at thehighest figures; Snow Ball, a calf, 41*gs.*; Sir William Gwynne 46*gs.*, and Fawsley Baronet 38*gs.*

At Lillingstone Dayrell, Buckingham, 45 head of Mr. Roberts' herd of short-horns brought an average of £28 12*s* for 33 cows, and £30 17*s.* for 12 bulls.

From the Grendon herd 36 cows averaged £22 12*s.* 8*d*, and 17 bulls £34 1*s.* 3*d.* The highest figure per cow was 34*gs.*, and per bull 80*gs.*

At Gordon Castle Farm 14 bull calves sold at an average of £22 1*s.*, and eight cows and heifers at £21 15*s.* 6*d.*

SALES OF SHEEP IN ENGLAND.

At the ram sales at the Worcester fair, 15 Shropshire Down rams sold at from £6 6*s.* to £23 2*s.* Another lot of 7 pure-bred Shropshire rams brought from £5 15*s.* 6*d* to 9*gs.* And of a lot of 8 Shropshire shearling rams the highest price realized was 17*gs.*; lowest, 8½*gs.*; the average being a little over £13. Twelve shearling Leicester rams brought from £2 12*s.* 6*d.* to £3; 20 Leceister rams averaged £6 16*s.* 6*d.*, and two other lots ranged from 33*s.* to 35*s.* Shear-

ling Cotswold lambs sold at £5 15*s.* 6*d.*; 15 Cotswolds brought 7*gs.* each; 6 gray-faced ditto brought 6*gs.*; 35 Cotswold rams averaged £6; 12 Oxford rams averaged £10 each, the highest bringing 16*gs.*; lowest, £6 16*s.* 6*d.*; 12 capital rams of the Oxford Down cross brought an average of £6 10*s.* 4*d.*, and 10 Oxford Down rams averaged £9 2*s.*, the higest reaching 14½*gs.*; lowest, 7*gs.*; 8 superior shearling Lincoln rams and two older rams ranged from £5 10*s.* to 13*gs.*; 15 shearling Lincoln rams from £3 7*s* 6*d.* to £8 5*s.*; and 10 prime cross-bred Lincoln and Cotswold shearlings brought from £3 2*s.* 6*d.* to 5*gs.* each.

At the Partney fair sales the Huttoft rams (40) reached the highest average of any at the fair, £11 13*s.* One sold for £33, one for £29, and another for £27. The Langton Grange sheep, (40,) descended from some of the best sheep in the county, commanded great attention, and averaged £11 6*s.*—one bringing £28, two £25 each, and two £21 each. A lot of 24 sheep averaged £9 16*s.*; one of 17 sheep, £8 13*s.*; another lot averaged £9 5*s.*; and still another, grass fed, about £5.

At the Gordon Castle sale a remarkably fine lot of Leicester and Southdowns were sold. The average price of 100 ewes, sold in lots of 5, was 33*s.* 10*d.*, and the average of 78 gimmers, also sold in lots, was 35*s.* 8*d.*; 58 Leicester rams averaged nearly 82*s.*; 10 Southdown ewes, 33*s.* 6*d.*; 4 Southdown rams, 65*s.*, and 10 Southdown gimmers, 30*s.* 6*d.*

About 37,000 sheep were offered at the Lewes sheep fair on the 21st, the large number being caused principally by the scarcity of food. Prices ranged from 20*s.* to 41*s.* for ewes, and from 14*s.* to 27*s.* 6*d.* for lambs, but it is probable that half were driven away unsold. The following figures will show the ruling of sheep and lambs, and the number offered at this fair, for the past 18 years:

Year.	Number.	Ewes.	Lambs.
1850	28,000	22*s.* to 26*s.*	15*s.* to 20*s.*
1855	30,000	25*s.* to 34*s.*	15*s.* to 25*s.*
1860	30,000	30*s.* to 40*s.*	14*s.* to 30*s.*
1864	24,000	30*s.* to 42*s.*	17*s.* to 32*s.*
1865	16,000	34*s.* to 52*s.*	23*s.* to 40*s.*
1867	29,000	30*s.* to 48*s.*	20*s.* to 32*s.*
1868	37,000	20*s.* to 41*s.*	14*s.* to 27*s.* 6*d.*

EUROPEAN HOP CROPS.

The English hop crop, though not up to the expectation of last June, is still large. The quality, however, is exceedingly various, about one-third being very fine, one-third moderately fine, and the remainder shading down to the lowest and brownest samples. The continental crop will probably be about one-half that of last year, and quite variable in quality, of which 45,000 bales will probably be shipped to English markets under promise of good prices. English dealers also count upon 25,000 bales from the United States. Considering the moderate stocks of old and yearling hops now remaining, there is a prospect of a firm and advancing market.

METEOROLOGY.

[Compiled in the Department of Agriculture, from reports made by the observers of the Smithsonian Institution. Notes on the weather closed October 17. Tables closed Oct. 19.]

SEPTEMBER, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain fall, including melted snow, (in inches and tenths,) for September, 1868, at the places named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MAINE.				°		°	°	*In.*
Steuben	Washington	J. D. Parker	6	70	17	36	53.9	7.50
West Waterville	Kennebec	B. F. Wilbur	1	80	18	32	56.7	4.73
Gardiner	....do	R. H. Gardiner	1	74	18	39	56.3	8.24
Standish	Cumberland	John P. Moulton	1	81	30	36	56.9	8.82
Norway	Oxford	Howard D. Smith	1	80	17	34	55.3	.....
Cornish	York	Silas West	1	78	17, 18	36	55.5	8.79
Cornishville	....do	G. W. Guptill	1	79	17	34	58.2	7.13
Averages							56.1	7.54
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	12	84	18	30	53.9	6.17
Shelburne	....do	Alfred Colby	1	87	18	24	56 2	.....
Goffstown Centre	Hillsboro'	F. Odell	1	85	18	32	57.5	16.40
Averages							55.9	11.29
VERMONT.								
Lunenburg	Essex	H. A. Cutting	12	80	18	25	55.0	6.08
North Craftsbury	Orleans	Rev. E. P. Wild	12	80	22	29	52.2	5.65
Randolph	Orange	Chas. S. Paine	13	86	17, 18	30	57.0	.....
Woodstock	Windsor	Doton & Miller	11	76	22	30	53.8	.....
West Charlotte	Chittenden	M. E. Wing	13	88	17, 22	36	61.2	11.00
Middlebury	Addison	H. A. Sheldon	13	79	17, 22	38	56.6	4.99
Averages							56.0	6.93
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	1	90	18, 22	43	63.3	4.71
Topsfield	Essex	S. A. Merriam	1	84	17, 18	34	58.5	9.01
Lawrence	....do	John Fallon	11	76	18	38	56.6	13.42
Georgetown	....do	S. A. Nelson	1	87	18	38	59.0	9.25
Milton	Norfolk	Rev. A. K. Teele	1	87	18	37	57.8	7.54
Cambridge	Middlesex	Rev. J. B. Perry	13, 18	86	18	39	62.1	.....
North Billerica	....do	Rev. E. Nason	1	82	18, 22	34	59.7	.....
New Bedford	Bristol	Samuel Rodman	1	83	17	44	62.5	5.71
Worcester	Worcester	A. E. Walker	1	80	18	40	59.8	8.60
.....	....do	Jno. G. Metcalf, M. D	1	80	18	36	59.1	7.30

Table showing the range of the thermometer, &c., for September—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
				°		°	°	*In.*
MASS.—Continued.								
Amherst	Hampshire	Prof. E. S. Snell	1	80	18	36	59.5	10.63
Williams College	Berkshire	Prof. A. Hopkins	11	77	18, 22	36	58.4	6.50
Hinsdale	....do	Rev. E. Dewhurst	11, 12, 13	75	17	38	56.5	10.30
Averages							59.4	8.45
RHODE ISLAND.								
Newport	Newport	Wm. H. Crandall	12	82	18, 30	48	63.7	4.20
CONNECTICUT.								
Pomfret	Windham	Rev. D. Hunt	1	79	17	40	58.5	8.67
Columbia	Tolland	Wm. H. Yeomans	1	84	18	37	63.4	.....
Middletown	Middlesex	Prof. John Johnston	13	84	18	40	61.6	10.49
Colebrook	Litchfield	Charlotte Rockwell	13	82	18	34	59.0	.....
Waterbury	New Haven	Rev. R. G. Williams	13	82	30	34	59.6	12.28
Averages							60.4	10.48
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh's	1	94	18	44	68.3	8.03
Troy	Rensselaer	Jno. W. Heimstreet	13	81	22	40	60.9	8.48
Garrison's	Putnam	Thomas B. Arden	12	84	{17, 18, 22, 30}	43	62.0	10.30
Throg's Neck	Westchester	Miss E. Morris	13	88	17	46	65.6	.....
Deaf and Dumb Inst.	New York	Prof. O. W. Morris	12, 13	85	17	48	64.4	9.60
Columbia College	....do	Prof. Chas. A. Joy	13	86	17	48	65.0	8.81
Flatbush	King's	Eli T. Mack	13	88	17	46	65.1	5.99
Minaville	Montgomery	Prof. J. W. Bussing	11, 12	78	22	38	57.6	6.26
Gouverneur	St. Lawrence	C. H. Russell	1, 2, 3	72	17	33	54.3	3.59
North Hammond	....do	C. A. Wooster	12	90	17	40	61.1	5.60
Houseville	Lewis	Walter D. Yale	11, 12	81	21	38	56.4	5.35
South Trenton	Oneida	Storrs Barrows	1	84	22, 29	42	59.5	7.15
Cazenovia	Madison	Prof. Wm. Soule	12	82	21	37	56.9	.....
Oneida	....do	S. Spooner, M. D.	12	79	17	42	60.0	10.70
Depauville	Jefferson	Henry Haas	11	82	22	34	57.3	4.45
Oswego	Oswego	Wm. S. Malcolm	3, 10, 11	73	22	43	58.1	4.71
Palermo	....do	E. B. Bartlett	10, 11	81	21	36	57.7	4.10
North Volney	....do	J. M. Patrick	12	82	21	39	58.3	.....
Nichols	Tioga	Robert Howell	12	87	18	36	59.4	.....
Rochester	Monroe	H. W. Mathews	11	78	21	42	58.4	7.51
Little Genesee	Allegany	Daniel Edwards	2, 12	78	19	35	59.6	2.95
Suspension Bridge	Niagara	W. M. Jones	12	85	17	40	60.7	3.75
Buffalo	Erie	Wm. Ives	2	87	21	38	59.5	5.06
Averages							60.3	6.44
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	11	90	18	42	63.2	7.71
Newark	Essex	W. A. Whitehead	13	86	18	41	63.9	8.96
New Brunswick	Middlesex	Geo. H. Cook	12, 13	87	19	43	64.5	7.99
Trenton	Mercer	E. R. Cook	13	86	18	48	68.2	7.25
Moorestown	Burlington	Thos. J. Beans	12	88	19	45	65.3	8.27
Elwood	Atlantic	Joseph S. Fritts	11	90	18	39	62.2	.....
Rio Grande	Cape May	Jerusha R. Palmer	6, 23	93	18	42	69.3	5.13
Dover	Morris	Howard Shriver	12, 13	84	19, 30	41	63.1	10.85
Newfield	Gloucester	E. D. Couch	13	95	30	40	66.9	.....
Greenwich	Cumberland	R. C. Sheppard	12	86	18, 19, 30	47	67.2	7.79

Table showing the range of the thermometer, &c., for September—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEW JERSEY—Con.				°		°	°	*In.*
Vineland	Cumberland	John Ingram, M. D.	13	96	18	44	68.2	5.45
Averages							65.6	7.71
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	12	86	17	30	58.0	4.90
Fallsington	Bucks	Eben'r Hance	12, 13	87	18	46	66.0	6.80
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	12	87	17	49	67.9	8.01
Germantown	do	Thomas Meehan	13	90	28	43	65.7	.....
Horsham	Montgomery	Miss Anna Spencer	12	85	18	41	64.1	8.40
Plymouth Meeting	do	M. H. Corson	12	86	18, 19	24	65.1	.....
Byberry	Wayne	Theodore Day	12	84	18, 19	30	56.6	.....
Whitehall	Lehigh	Edward Kohler	12	84	18, 19	35	63.6	.....
Factoryville	Wyoming	R. Sisson	12	85	18	32	58.7	4.50
Reading	Berks	J. Heyl Raser	12	84	18	40	63.9	.....
West Chester	Chester	Geo. Martin, M. D	11, 12, 13	82	18	48	62.3	8.24
Harrisburg	Dauphin	John Heisely, M. D.	12	85	18, 19	47	65.1	5.58
Fountain Dale	Adams	S. C. Walker	11, 12	82	19	43	62.8	6.86
Tioga	Tioga	E. T. Bentley	12	90	17, 19	38	62.5	7.90
Lewisburg	Union	Prof. C. S. James	12	84	30	38	60.7	5.71
Ickesburg	Perry	Wm. E. Baker	12	84	18	35	61.9	4.86
Grampian Hills	Clearfield	Elisha Fenton	2	81	18	30	56.6	6.36
Johnstown	Cambria	David Peelor	2	76	18	33	57.3	10.92
Franklin	Venango	Rev. M. A. Tolman	12	81	18	35	59.2	4.88
Connellsville	Fayette	John Taylor	2, 13	80	18	35	61.4	.....
New Castle	Lawrence	E. M. McConnell	11	82	18	32	61.8	.....
Beaver	Beaver	Rev. R. T. Taylor	12	79	18	43	60.8	2.00
Canonsburg	Washington	Rev. W. Smith, D. D	12	84	18	37	61.4	7.96
Averages							61.9	6.53
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	13	90	18	44	66.0	8.13
Annapolis	Anne Arundel	Wm. R. Goodman	10, 11	86	30	49	69.7	6.34
St. Inigoes	St. Mary's	Rev. J. Stephenson	12	90	17	52	70.3	6.15
Emmittsburg	Frederick	Eli Smith	12	86	17	42	64.1	.....
Mt. St. Mary's Coll.	do	Prof. C. H. Jourdan	12	83	17, 18	44	62.2	7.78
Averages							66.5	7.10
VIRGINIA.								
Surry C. H	Surry	B. W. Jones	1, 13	93	17, 30	50	74.1	.....
Mt. Solon	Augusta	J. T. Clarke, M. D	27	86	25	32	59.6	4.50
Lynchburg	Bedford	C. I. Merriwether	11	84	18	47	69.1	.....
Snowville	Pulaski	J. W. Stalmaker	11	85	18	36	63.8	12.60
Wytheville	Wythe	Rev. Jas. A. Brown	11	84	18	36	64.0	4.27
Deaf, Dumb, and Blind Inst.	Augusta	J. C. Covell	12	84	18, 19	45	66.8	0.68
Averages							66.2	5.51
WEST VIRGINIA.								
Romney	Hampshire	W. H. McDowell	11	86	18	38	63.5	.....
White Day	Monongalia	W. H. Sharp, M. D	12	86	18	40	68.5	.....
Weston	Lewis	Benjamin Owen	12	85	18, 19	40	63.8	.....
Averages							65.3	.....

Table showing the range of the thermometer, &c., for September—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NORTH CAROLINA.				°		°	°	*In.*
Kenansville	Duplin	Prof. N. B. Webster	13	96	30	46	75.2	1.41
Goldsoro'	Wayne	E. W. Adams, A. M.	2	96	30	51	75.2	0.92
Oxford	Granville	W. R. Hicks, M. D.	2, 13	88	30	44	71.4	2.95
Albemarle	Stanley	F. J. Krow	1	90	18	42	71.0	7.29
Statesville	Iredell	Thos. A. Alison	1	85	30	41	56.9	3.69
Asheville	Buncombe	E. I. Aston	8, 9, 12	83	30	42	66.7	.....
Averages							69.4	3.25
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	1, 13, 23, 24	87	18	50	73.1	4.04
Gowdysville	Union	Charles Petty	12	89	18, 30	50	72.8	.....
Averages							73.0	4.04
GEORGIA.								
Atlanta	Fulton	F. Deckner & Son	1	87	18, 19	48	70.1	3.84
ALABAMA.								
Opelika	Lee	J. H. Shields	13	91	18	54	74.9	4.59
Carlowville	Dallas	H. L. Alison, M. D.	16	91	26	56	76.3	6.21
Moulton	Lawrence	Thos. M. Peters, A. M.	11	86	26	47	69.0	5.27
Greene Springs	Hale	H. Tutwiler	1	89	26	51	73.7	3.67
Havana	..do	S. K. Jennings, M. D.	1, 11	87	26, 27	52	72.6	4.98
Fish River	Baldwin	W. J. Van Kirk	13, 15	89	25	63	79.4	6.20
Averages							74.3	5.15
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	24, 25	94	18	62	81.2	6.15
TEXAS.								
Gilmer	Upshur	J. M. Glasco	8	98	26	48	74.6	5.51
Houston	Harris	Miss E. Baxter	9, 10, 11, 12	82	24	65	73.6	.....
Columbia	Brazoria	Hennell Stevens	12	97	26	59	78.5	2.50
Waco	McLellan	Edw. Merrill, M. D.	20	96	23	53	77.0	2.80
Austin	Travis	J. Van Nostrand	12, 22	94	23	53	77.4	1.72
Averages							76.2	3.13
LOUISIANA.								
Benton	Bossier	J. H. Carter	8	89	26	50	75.0	.....
New Orleans	New Orleans	Robt. W. Foster	22, 24	89	18	72	.....	.....
MISSISSIPPI.								
Grenada	Yalabusha	Albert Moore	7, 8	88	26	44	72.9	.....
Brookhaven	Lawrence	T. J. R. Keenan	10	92	26	53	77.0	.....
Natchez	Adams	Wm. McCary	11, 12	88	25, 27	55	73.8	3.50
Averages							74.6	3.50
TENNESSEE.								
Elizabethton	Carter	Charles H. Lewis	11	89	13	42	67.2	.....
Tusculum College	Green	S. S. and Rev. W. S. Doak.	11	91	18, 19, 30	46	68.8	5.15
Austin	Wilson	P. B. Calhoun	2, 8, 9	86	26	44	68.7	10.20
Clarksville	Montgomery	Prof. W. M. Stewart	8	87	25	45	65.8	3.80
Memphis	Shelby	Edw. Goldsmith	7	95	24	51	71.7	9.31
Averages							68.4	7.12

Table showing the range of the thermometer, &c., for September—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
KENTUCKY.				°		°	°	*In.*
Chilesburg	Fayette	Sam'l D. Martin	9	86	26	36	63.3	8.63
Lexington	....do	S. R. Williams	8	84	17, 18, 26	42	63.6	7.81
Danville	Boyle	O. Beatty	15	90	17	48	68.8	9.75
Louisville	Jefferson	Mrs. L. Young	8	87	26	38	65.4	5.57
Clinton	Hickman	Rev. T. H. Cleland	8	88	26	43	66.2	5.89
Averages							65.5	7.53
OHIO.								
New Lisbon	Columbiana	J. F. Benner	11	85	18	31	63.0	2.38
Steubenville	Jefferson	Jos. B. Doyle	2, 12	78	18	43	64.1	.....
Painesville	Lake	E. J. Ferris	12	78	17, 21	44	59.3	7.75
Milnersville	Guernsey	Rev. D. Thompson	1	85	18	36	59.3	5.33
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	12, 15	79	17, 18	43	59.7	4.72
Wooster	Wayne	Martin Winger	1	87	18	38	63.7	3.58
Smithville	....do	Wm. Hoover	14	86	17	38	62.4	.....
Kelley's Island	Erie	Geo. C. Huntington	10, 12	83	25	47	63.9	3.29
Sandusky	....do	Thomas Neill	10	78	17	40	57.6	3.20
Norwalk	Huron	Rev. A. Newton	3	78	17, 26	42	59.6	2.17
North Fairfield	....do	O. Burras	{3, 10, 11 / 12, 15}	78	26	42	60.6	2.71
Westerville	Franklin	Prof. Jno. Haywood	3	80	26	42	.....	5.72
Marion	Marion	H. A. True, M. D	3, 8	78	17	36	59.0	3.57
Hillsboro'	Highland	J. McD. Mathews	8	78	17	40	60.2	8.89
Toledo	Lucas	J. B. Trembly, M. D	11, 12	82	17	36	59.9	2.50
Kenton	Hardin	C. H. Smith, M. D	1	80	18	46	63.9	8.19
Urbana University	Champaign	M. G. Williams	8	81	26	37	60.5	3.81
Bethel	Clermont	Geo. W. Crane	8	85	26	38	61.6	6.75
Cincinnati	Hamilton	Geo. W. Harper	8	82	17	43	62.3	7.19
Do	....do	R. C. Phillips	4, 8, 15	84	26	44	67.7	8.21
College Hill	....do	John W. Hammitt	8	88	17	40	63.1	5.88
Jacksonburg	Butler	J. B. Owsley, M. D	8	81	17	41	62.5	6.69
Averages							61.6	5.13
MICHIGAN.								
Monroe City	Monroe	Miss H. I. Whelpley	11	72	21, 23	36	53.2	3.55
State Agr'l Col	Ingham	Prof. R. C. Kedzie	10	83	17, 21	32	58.8	2.95
Litchfield	Hillsdale	R. Bullard	12	81	21, 25	36	57.6	4.19
Grand Rapids	Kent	E. S. Holmes, D. D. S	12	85	21	34	57.8	.....
Northport	Leelenaw	Rev. Geo. N. Smith	10	74	20	32	55.2	.....
Holland	Ottawa	L. H. Streng	10, 11	81	21	34	57.4	5.66
Otsego	Allegan	Milton Chase, M. D	10	84	21	32	57.1	.....
Copper Falls	Keweenaw	Dr. S. H. Whittlesey	7	64	24	27	46.3	2.29
Ontonagon	Ontonagon	Edwin Ellis, M. D	8	66	{20, 21, 23, 24}	36	53.9	.....
Coldwater	Branch	N. L. Southworth	11	80	21	33	57.2	4.25
Averages							55.5	3.82
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M. D	8	90	26	39	64.1	6.68
Vevay	Switzerland	Chas. G. Boerner	8	86	17, 26	44	65.8	6.72
Muncie	Delaware	G. W. H. Kemper, M. D	8	83	26	34	61.6	6.30
Columbia City	Whitley	{Dr. F. and Miss L. McCoy.}	11	86	17, 19, 28	34	56.3	6.63
Jalapa	Grant	Albert C. Irwin	11	81	25	41	60.4	6.59
Indianapolis	Marion	W. J. Elstern, M. D	8	81	26	36	59.7	5.31
Rensselaer	Jasper	Dr. J. H. Lorgbridge	12	82	17	38	62.9	11.30

Table showing the range of the thermometer, &c., for September—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
INDIANA—Con.				°		°	°	*In.*
New Harmony	Posey	John Chappellsmith.	8	85	25	46	67.5	8.49
Averages							62.3	7.18
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr.	12	84	23	43	63.2	7.08
Near Chicago	do	Samuel Brookes	2	90	16, 17	38	61.3	.....
Ridge Farm	Vermillion	B. C. Williams. M. D.	10, 11	84	17, 23	40	61.3	5.90
Marengo	McHenry	O. P. & F. Rogers	12	83	17	30	55.5	6.67
Golconda	Pope	Wm. V. Eldredge	10	97	17	40	72.6	4.70
Aurora	Kane	A. & E. D. Spaulding	12	80	23	32	56.7	5.47
Belvidere	Boone	G. B. Moss	2, 12	78	21	38	55.8	7.16
Ottawa	La Salle	Mrs. E. H. Merwin	2	83	23	36	58.3	3.48
Winnebago	Winnebago	J. W. & Miss Tolman.	10	81	23	31	58.9	5.23
Rochelle	Ogle	Daniel Carey	10, 12	82	23	31	56.5	.....
Wyanet	Bureau	E. S. & Miss Phelps	10	86	23	30	59.5	4.65
Tiskilwa	do	Verry Aldrich	10	87	23	33	58.5	.....
Hennepin	Putnam	Smiley Shepherd	10	86	23	34	59.0	.....
Elmira	Stark	O. A. Blanchard	10	82	23	32	58.2	2.61
Peoria	Peoria	Frederick Brendel	12	83	17	38	61.3	4.46
Springfield	Sangamon	G. M. Brinkerhoff	14	89	16, 17, 18, 24	40	59.4	.....
Dubois	Washington	Wm. C. Spencer	12	84	26	30	56.8	13.60
Waterloo	Monroe	H. Künster	2, 11, 12	82	23	43	65.6	.....
South Pass	Union	H. C. Freeman	8	93	23, 26	43	67.0	.....
Galesburg	Knox	Prof. W. Livingston	10	81	23	33	59.0	5.28
Manchester	Scott	Dr. J. & C. W. Grant	11	85	16	41	63.3	3.89
Mount Sterling	Brown	Rev. A. Duncan	10	90	23	38	64.3	.....
Andalusia	Rock Island	E. H. Bowman, M. D	10	81	23	33	59.8	.....
Augusta	Hancock	S. B. Mead, M. D	11	83	16, 17, 23	42	62.8	4.29
Paris	Edgar	C. Levings	12	84	17	46	64.0	.....
Averages							60.7	5.63
WISCONSIN.								
Manitowoc	Manitowoc	Jacob Lüps	10, 12	77	21	34	55.3	3.72
Plymouth	Sheboygan	G. Moeller	10	78	21	27	53.1	3.60
Milwaukee	Milwaukee	I. A. Lapham, LL.D	8, 12	79	21	33	56.4	0.90
Geneva	Walworth	Wm. H. Whiting	10	81	21, 23	32	56.9	4.21
Waupacca	Waupacca	H. C. Mead	1	75	23	35	54.3	.....
Embarrass	do	E. Everett Breed	1	74	20	31	52.0	5.06
Edgerton	Rock	Henry J. Shints	9, 11, 12, 13	80	23	30	57.2	2.13
Bayfield	La Pointe	Andrew Tate	5	74	25	26	49.2	.....
Averages							54.3	3.27
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	9, 11	72	25	23, 25	51.5	2.88
Minneapolis	Hennepin	Wm. Cheney	4	72	25	18	50.5	2.78
Sibley	Sibley	C. W. & C. E. Woodbury.	11	79	25	34	46.6	2.96
New Ulm	Brown	Charles Roos	11	80	25	22	56.9	3.89
Sauk Centre	Stearns	S. Bloomfield	7	73	23, 25		48.9	3.44
Averages							50.9	3.19
IOWA.								
Dubuque	Dubuque	Asa Horr, M. D	8	78	25	38	57.1	5.0

Table showing the range of the thermometer, &c., for September—Continued.

Stations, &c.	Counties.	Observers.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
IOWA—Continued.				°		°	°	*In.*
Monticello	Jones	M. M. Moulton	2,8,10,11	78	17, 23	34	55.1	6.72
Bowen's Prairie	do	Sam'l Woodworth	11	78	23	32	54.5	7.20
Fort Madison	Lee	Dan'l McCready	11	87	23	29	60.1	2.05
Guttenberg	Clayton	Jas. P. Dickerson	1, 11	80	23	26	53.1	.....
Mount Vernon	Linn	Prof. A. Collins	8	82	23	30	56.6	.....
State University	Johnson	T. S. Parvin, A. M	1, 10	81	17, 23	32	58.8	5.17
Independence	Buchanan	Geo. Warne, M. D	11	85	23	32	55.3	6.00
Near Independence	do	Mrs. D. B. Wheaton	1	83	22, 23	29	54.8	8.60
Waterloo	Black Hawk	T. Steed	11	81	22	32	54.8	.....
Marble Rock	Floyd	H. Wadey	11	76	24	33	54.7	.....
Algona	Kossuth	Ph. Dorweiler	11	77	25	30	52.2	.....
Do	do	James H. Warren	11	79	22	31	52.0	.....
Fort Dodge	Webster	C. N. Jorgensen	11	82	23, 24, 25	33	53.8	1.85
Boonesboro'	Boone	E. Babcock	11	82	17, 23	33	56.6	3.55
Rolfe	Pocahontas	Oscar I. Strong	11	82	23, 24	32	53.5	4.89
Fontanelle	Adair	A. F. Bryant	11	86	22, 23	35	57.2	5.63
Logan	Harrison	Jacob F. Stern	11	83	23	31	54.9	4.20
Woodbine	do	David R. Witter	11	86	23	28	54.8	.....
Averages							55.3	5.08
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	11	83	24	44	64.7	5.43
Allenton	do	A. Fendler	2	85	17	35	62.5	7.19
Hematite	Jefferson	John M. Smith	12	87	17	35	64.4	7.05
Canton	Lewis	George P. Ray	11	87	23	29	62.3	4.64
Rolla	Phelps	Homer Ruggles	8	83	17	42	64.1	4.85
Hermitage	Hickory	Miss Belle Moore	5	92	17	37	65.6	6.12
Harrisonville	Cass	John Christian	11	86	23	40	61.9	6.63
Oregon	Holt	William Kaucher	11	93	23	35	61.1	2.87
Warrensburg	Johnson	J. E. Pollock	11	90	23	35	65.1	2.24
Averages							63.4	5.22
KANSAS.								
Leavenworth	Leavenworth	J. Stayman, M. D	5, 11	90	23	26	60.6	2.72
Baxter Springs	Cherokee	Ingraham & Hyland	11	95	17, 23, 24	46	69.8	13.65
Atchison	Atchison	Dr. H. B. & Miss Horn	5	91	23	30	61.8	7.30
State University	Lawrence	Prof. H. F. Snow	5	93	23	29	62.4	4.29
Holton	Jackson	Dr. James Watters	11	93	17	32	62.1	.....
State Agricult'l Coll.	Riley	Prof. B. F. Mudge	10	87	23	34	60.7	5.72
Council Grove	Morris	A. Woodworth, M.D.	5, 11	88	23	33	65.6	10.25
Averages							63.3	7.32
NEBRASKA.								
Elkhorn	Washington	John S. Bowen	11	86	22	36	56.9	.....
De Soto	do	Charles Seltz	11	86	22	33	54.5	3.27
Fontanelle	do	Henry Gibson	11	90	23	30	57.7	.....
Bellevue	Sarpy	Mrs. E. E. Caldwell	11	85	23	36	59.1	2.30
Glendale	Cass	Dr. A. L. & Miss Child	11	86	22	30	57.3	2.35
Nebraska City	Otoe	Prof. P. Zahner	11	84	23	41	63.6	.....
Averages							52.2	2.61

NOTES ON THE WEATHER.—SEPTEMBER, 1868.

West Waterville, Me.—Frost and ice 18th; robins left 29th; temperature 3.71° below the average of September for four years; rain fall 2.25 inches above the average for four years.

Gardiner, Me.—A cold, wet month. September average for 32 years is 58.44°; this September nearly 2½° below that; the rain-fall more than five inches above the September average of 32 years (3.22 inches.) The greatest previous September rainfall was 5.76 inches, in 1848.

Norway, Me.—An uncommonly wet and cold September; white frosts on 17th, 18th, 22d, and 30th.

Lisbon, Me.—Corn good and generally matured by 15th; potatoes light yield, but good; wet weather caused rot. Frost on 17th, 18th, and 19th. Rain-fall 7.93 inches.

Cornishville, Me.—First frost 17th; Indian corn heavy; potatoes yield well but rot badly; fall feed very good. The September average temperature for 40 years 50°; this September 58 22°.

Antrim, N. H.—Sharp frosts 17th, 18th, and 22d; that of morning of 17th very severe.

Stratford, N. H.—Light frosts 15th; hard frosts and ice 17th and 18th. Considerable rain, but streams low.

Goffstown Centre, N. H.—Remarkably wet month; 18 rainy days; rain-fall 16.4 inches, of which 4.3 inches fell in 24 hours. Potatoes rotting in consequence. Frosts not very severe.

Lunenburg, Vt.—First frost, very severe, 17th; hard frost 18th and 19th; slight ones 21st and 22d. Month very wet, roads muddy, streams high, aurora visible every clear night.

Randolph, Vt.—More rain this month than in any month for three years.

Woodstock, Vt.—Sharp frost on 17th, ice quarter inch thick; and another on 18th.

West Charlotte, Vt.—Back from Lake Champlain heavy frosts on 16th, 17th, 18th, 19th, and 20th, but they did not reach the bays.

Topsfield, Mass.—Heavy hoar frost 18th; springs full.

New Bedford, Mass.—Linden and silver poplar leaves falling 3d; slight hoar frost 17th. Elm and other trees losing foliage.

Lunenburg, Mass.—Coldest September since 1860; great amount of rain, and potatoes rotting badly.

Pomfret, Conn.—First frosts 17th, 18th, and 19th, none killing. Much rain and cloudy weather this month.

Waterbury, Conn.—First frost 18th, severe; others 19th and 30th, slight. Much rain in September.

Moriches, N. Y.—First frost 18th. The excess of rain this month contrary to the saying that "a wet May makes a dry September."

Troy, N. Y.—Fully clouded, 13 days; entirely clear, none. Mean temperature 1.12° below September for 12 years; rain-fall 5.25 inches more than September average of 12 years, and is the greatest ever registered here since 1826.

Garrison's, N. Y.—Cold and wet September, but frost on 18th; did not injure crops. Pasture abundant.

North Hammond, N. Y.—Frost 17th and 18th. Frequent showers and but little frost during September.

Cazenovia, N. Y.—Hail on 17th; frosts on 17th, 18th, and 22d.

Palermo, N. Y.—Slight frosts 17th, 18th, 20th, and 21st, but vegetation green as in summer.

Nichols, N. Y.—Severe frost 17th, destroyed much buckwheat and vegetation generally; hard frost, fog, and rain, 18th; light frost and fog 19th.

Buffalo, N. Y.—Isabella and Ontario grapes leafed May 20, blossomed June 25, first ripened September 25.

Newark, N. J.—The maximum (86°) on 13th was exceeded in only 8 of 25 preceding Septembers, and the minimum (41.25°) on 18th was above 14 of the 25. No frost in this city.

Elwood, N. J.—First frost 18th, harmless. Time between spring and fall frosts, 137 days

Rio Grande, N. J.—Slight frosts 18th and 19th.

Dover, N J.—First and second frosts nights of 17th and 18th, killing vines and searing corn badly.

Greenwich, N. J.—First frost 18th; first 14 days of September warm; 15 days rainy; not one wholly clear day in the month.

Vineland, N. J.—Light frosts 18th and 19th; the last seared sweet potato vines slightly.

Fallsington, Pa.—Light frosts 18th, 19th, and 30th; fine weather.

Horsham, Pa.—White frosts in low places on 17th, 18th, and 19th; no damage.

Dyberry, Pa.—Frosts 17th, 18th, 19th, killing vegetation; month wet.

Factoryville, Pa.—First frost and ice 17th; frosts 18th, 19 h; rain 20th.

West Chester, Pa.—Farmers cutting corn 17th; frosts 18th, 19th.

Harrisburg, Pa.—Rain 1st, 3d, 7th, 14th, 20th, 22d, 23d, 24th, and 26th, with thunder 9th, 10th, 12th, and 25th, 13 days out of 30.

Fountain Dale, Pa.—First frosts 17th, 18th, and 19th. Month unusually wet, retarding farm work. Forest leaves green, except hickory, which shows yellow.

Tioga, Pa.—Severe frosts, injuring buckwheat, corn, and garden vegetables, 17th and 19th. Month very wet and unfavorable for gathering crops.

Ickesburg, Pa.—First frost, very light, 17th; severe frost 18th. From frost to frost, April 27th to September 17th, 142 days.

Johnstown, Pa.—Slight frost on 18th; was very severe in Indiana county and on the mountain.

Franklin, Pa.—Frost on hill tops and high lands 18th; forest leaves begin to color.

Connellsville, Pa.—On 18th very heavy white frost; grass and plantain leaves frozen stiff; it was followed by fog.

Woodlawn, Md.—Frosts killing vegetables on low grounds 17th, 18th, and 19th.

Emmittsburg, Md.—First frost at Mount St. Mary's on 18th.

Surry C. H., Va.—Last appearance of firefly, 10th; of martins, 14th; of whippoorwill, 19th. Indian-summery, and katydids singing in daytime 19th; wild pigeons flying 28th and 29th; frost reported in Isle of Wight county 30th.

Comorn, Va.—Light frosts 18th, 19th, and 30th; a healthy autumn.

Mount Solon, Va.—Light frost on 13th; in low places late corn was seared, and grass bitten on mountains.

Snowville, Va.—First frost 18th; tobacco badly bitten in counties south of this. Frost also 19th and 30th.

Wytheville, Va.—Frosts 18th and 19th; the first injured tender plants and seared corn-blades slightly. Weather favorable.

White Day, West Va.—Frosts 17th, 18th, and 30th, and in country around on 18th. Ice formed three miles from here.

Kenansville, N. C.—Lightning and thunder on 4th, 7th, 14th, 16th, and 25th. Very dry and unhealthy Corn and cotton better than usual.

Statesville, N. C.—Light frosts 18th, 19th, and 30th; no damage—early for this section

Atlanta, Ga.—Lightning and thunder 1st, 2d, 3d, 9th, 10th, 11th, 12th, 13th, and 14th—the last with heavy rain from southwest.

Opelika, Ala.—Mocking-birds resumed singing 4th; cotton-worms appeared on 10th.

Moulton, Ala.—Quite cool 17th, 18th, and 19th; making sorgo molasses 19th; maize corn ripe 24th. Month foggy and damp.

Jacksonville, Fla.—Temperature of September unusually high—about 3° above usual average. The northeast storm of 17th and 18th reduced it below usual range.

New Orleans, La.—Much rain and sultry weather; heat more oppressive than in July; northeast wind of 18th cooled the night.

Clarksville, Tenn.—Cumberland river over the lower bottom fields, for the first time in September since the country was settled.

Clinton, Ky.—First white frost 18th, second 26th, both very slight.

Chilesburg, Ky.—Slight frosts 17th, 18th, 26th, 29th; only tenderest vegetables injured. Corn has ripened well; grapes all gathered.

New Lisbon, Ohio.—First frost 17th; hard frosts 18th, 19th. Pastures as fine as in May.

Marion, Ohio.—First frost 17th; sharp, but did not kill vegetables in town.

Litchfield, Mich.—Heavy frost on 17th; injured buckwheat, potatoes, &c., on low grounds. A very cold month, but vegetation still growing, as but two frosts did any injury.

Otsego, Mich.—Frosts on 15th, 16th, 18th, and 20th; that of 18th nipped corn.

Northport, Mich.—A chilly, wet month; frost of 20th about a month earlier than usual, damaged potatoes and buckwheat some.

Copper Falls, Mich.—On 23d finest auroral display ever seen here; another very fine on 29th.

Ontonagon, Mich.—Light frost 17th; heavy 21st. Snow, one and one-half inches, 22d and 23d. Ground frozen hard on 25th.

Muncie, Ind.—Frosts 17th and 18th, damaging fodder but not the corn.

Indianapolis, Ind.—Frosts on 17th, 18th, 24th, 25th, and 29th, searing the corn.

Chicago, Ill.—First frost, severe, 17th; another, slight, 28th.

Near Chicago, Ill.—Slight frost 16th; severe 17th. The month has been very chilly, with much rain.

Ridge Farm, Ill.—Frost 17th, searing corn-blades, and damaging late corn.

Marengo, Ill.—Light frosts 13th, 16th; heavy 17th.

Belvidere, Ill.—Severe frost with ice night of 16th; last previous frost May 19th—120 days.

Ottawa, Ill.—Rain 2d, 5th, 8th, 11th, 12th, 19th, 29th, and 30th; fog or mist 7th, 24th, 25th, and 26th; frosts 17th, 18th, 21st, and 23d.

Hennepin, Ill.—Moderate temperature and equably distributed rain keep crops growing and ripening finely. The only check was the frost on the 17th.

Dubois, Ill.—Light frosts, in places, 4th and 17th; great rains, 5 inches on 10th, and 4.3 inches on 30th; more rain in September than in any one month for years.

Waterloo, Ill.—On 8th, 10th, and 12th, heaviest rains ever known here; also on 21st and 22d heavy rain all night with lightning and thunder.

Mount Sterling, Ill.—First white frost 16th, others 18th and 23d; some late corn in low places hurt by the latter.

Manitowoc, Wis.—Thunder storms 1st, 2d, 6th, 12th, 14th, 15th, 27th; frost in low places 16th, also, with freezing, 21st. Coldest September in 17 years.

Plymouth, Wis.—First frosts in September, 1861, 27th; 1862, 1st; 1863, 17th; 1864, 27th; (1865, October 2d;) 1866, 21st; 1867, 30th; 1868, 21st; average of eight years, September 22d.

Milwaukee, Wis.—Heavy hoar frosts 16th, 21st, 23d.

Geneva, Wis.—On 29th, sky clear, air calm, a deep, low sound, like the sub-bass of an organ, was heard at 10 a. m. for about an hour, sometimes low and faint, apparently from the west. (Under similar circumstances a like sound was also heard last spring.) It was followed, in a few hours, by clouds from the west, with strong wind at 9 p. m.

Embarrass, Wis.—First frost, slight, 13th; severe 16th, 17th, 21st, 23d, 24th, 25th, and 29th. Month cold and rainy—October weather.

Minneapolis, Minn.—First slight frost 13th; first killing frost 16th; first snow, slight, 22d.

Sibley, Minn.—Slight frost 9th; killing, 16th; snow-squall, 22d.

New Ulm, Minn.—On 11th, at 4 p. m., a tornado going eastward passed seven miles northwest of here, cutting a track through woods and fields, prostrating trees, fences, &c., and in one case moving a stone weighing about three tons several yards. It probably commenced about latitude 44° 20′, and longitude 94° 40′. On same day, at 11 a. m., a very heavy rain and strong wind were experienced in Chicago.

Sauk Centre, Minn.—On 15th, severest frost ever known at this season; icicles formed six inches long. Frosts also on 16th, 19th, 21st, 22d, 23d, 24th, and 28th. Snow flurries on 22d.

Dubuque, Iowa.—Ice in low places 16th; hoar frost 17th and 23d.

Monticello, Iowa.—First frost 16th, six days later than last year. There were 118 days between frosts in 1868, 110 in 1867, 94 in 1866, and 139 in 1865.

Guttenburg, Iowa.—First frost 3d, second 13th, both light; severe, with ice, 17th. Good month for farm work; sorghum soured by frost of 17th.

Independence, Iowa.—Light frosts 3d and 13th; severe 16th and 17th; froze hard 23d; a fine rain, best in a year, 30th.

Waterloo, Iowa.—Slight frost 13th; heavy 15th, 16th, 17th; ground covered with snow 25th—melted in two hours.

Marble Rock, Iowa.—Frost in low places 2d; ice formed 13th and 16th. From 5th to 25th most unpleasant weather known here for the season.

Algona, Iowa.—First frost and ice 16th. Snow and rain 24th. Some late corn and cane injured. The most unpleasant September remembered here.

Boonesboro', Iowa.—White frost 16th, just five months since last frost; heavy frosts 17th and 23d. Coldest September in 14 years.

Rolfe, Iowa.—Heavy frosts 16th and 17th—131 days between frosts. Snow storm 24th.

Woodbine, Iowa.—Light frost on low lands 1st; heavy on 16th, 17th, and 23d.

Allenton, Mo.—First frosts 17th and 18th—did but little injury.

Canton, Mo.—First frost and ice 17th; others 18th and 23d. Wild geese flying 24th. Wild geese and brant remain here all winter.

Rolla, Mo.—First frosts, light, 17th and 23d. Thunder showers 3d, 7th, 8th, 9th, 12th, 19th, 20th, and 30th.

Oregon, Mo.—First frost in low places 13th; heavy, with ice in low places, 17th.

Atchison, Kan.—Very white frost 17th, little injury. Very heavy frost 23d, mercury 27° at daylight.

Council Grove, Kan.—Frost, barely visible, 17th; heavy, with ice, 23d; bland air, like Indian summer, 26th. Much lightning and thunder with every rain in September.

Elkhorn City, Neb.—White frost and thin ice 16th; ground frozen 23d.

Bellevue, Neb.—First frosts, slight, 3d; others 16th and 17th; ice thick as window glass 23d; smoky atmosphere 26th, 27th, 28th.

Glendale, Neb.—First frosts, light, 3d and 13th; hard freeze 16th and 17th; geese flying south 23d; cranes 20th. September cold and unpleasant.

MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

NOVEMBER AND DECEMBER,

1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1869.

MONTHLY REPORT.

WASHINGTON, D. C., *December* 31, 1868.

SIR: I herewith respectfully submit for publication a statement of the condition of the crops for November, with data bearing upon agricultural production, received in December, including estimates in detail of the corn and cotton crops of the year. I also present the following additional matter: Report of Professor John Gamgee on pleuro-pneumonia; Cereals for analysis; Condition and prospects of southern agriculture; Potatoes, yield of varieties; The Scuppernong grape; Is Texas a wine land? Insects injurious to the grape; Locusts or grasshoppers in Kansas; Humboldt county, Nevada; Yuba county, California; The diffusion process in sugar-making; English cotton for 1868; Agricultural colleges and model farms; Coal-ashes as a fertilizer; Agricultural statistics of Australia; American corn in Prussia.

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON, *Commissioner.*

CONDITION OF THE CROPS.

Reports have been made upon the condition of farm crops from month to month, and estimates calculated upon some of the principal products. The year has been one of more than average prosperity, as has been shown by previous exhibits. The tables of the present month make a comparison with last year, as to corn, cotton, tobacco, potatoes, hay, buckwheat, flax, sorghum, sugar cane, grapes, apples, and pears. These comparisons, giving due weight to all local or other circumstances affecting them, and making allowance for any errors or misconceptions, are calculated and set down in figures. The detailed statements of the estimated product of corn and cotton are given in the present number.

CORN.—We are unable to figure out the thousand millions of bushels promised by sanguine calculators. A handsome increase upon last year of 137,000,000 bushels, if not all that could be desired at the present time, affords an aggregate 67,000,000 bushels larger than in 1859, (without including the Pacific States, which are unsuited to corn production,) but a decrease in proportion to population. Illinois of course heads the list of States, with about one-seventh of the entire production, and an increase of about 16 per cent. in nine years—a good result, though barely abreast with the increase of population. The following is the estimate:

	Bushels.
Maine	1,590,000
New Hampshire	1,511,000
Vermont	1,672,000
Massachusetts	2,292,000
Rhode Island	346,000
Connecticut	2,152,000
New York	20,910,000
New Jersey	10,216,000

	Bushels.
Pennsylvania	31,979,000
Delaware	3,275,000
Maryland	12,349,000
Virginia	19,969,000
North Carolina	23,366,000
South Carolina	9,870,000
Georgia	27,294,000
Florida	2,950,000
Alabama	31,240,000
Mississippi	35,519,000
Louisiana	17,397,000
Texas	21,337,000
Arkansas	32,449,000
Tennessee	54,772,000
West Virginia	7,695,000
Kentucky	58,187,000
Missouri	60,967,000
Illinois	134,363,000
Indiana	90,832,000
Ohio	74,040,000
Michigan	18,815,000
Wisconsin	12,565,000
Minnesota	8,255,000
Iowa	65,332,000
Kansas	6,487,000
Nebraska	3,185,000
Total	905,178,000

COTTON.—Since the reception of the October returns local reports from the cotton section have been much more favorable, especially in the southwest, where the result in comparison with the acreage planted is better than in any preceding season since the trial of free labor. Picking has been unexpectedly prolonged, and the autumn favorable. While the area in cotton was somewhat less than in 1867, the culture was better, and in all the States west of Alabama the yield was far better, with less drawback and casualty, though the reverse was the case in all the more eastern cotton States. Yet it is the west that tells upon the result. Mississippi once produced nearly a million and a quarter of bales. The following estimate, which is assuredly below rather than above the actual yield, is not made for districts or cotton ports, as is generaly done in commercial reports, but for *States* separately:

	Bales.
North Carolina	140,000
South Carolina	180,000
Georgia	290,000
Florida	35,000
Alabama	285,000
Mississippi	400,000
Louisiana	250,000
Texas	260,000
Arkansas	265,000
Tennessee	200,000
Other States	75,000
Total	2,380,000

Table showing the condition of the crops, &c., on the 1st day of November, 1868.

STATES.	CORN.		POTATOES. (Solanum tuberosum.)		POTATOES. (Batatus edulis,) Sweet.		TOBACCO.		BEANS.	PEAS.
	Average product compared with 1867.	Quality of the same.	Average product compared with 1867.	Quality of the same.	Average product compared with 1867.	Quality of the same.	Average product compared with 1867.	Quality of the same.	Average product compared with 1867.	Average product compared with 1867.
Maine	10.1	9.7	12.1	11	.....	.....	.....	.....	13.6	9.7
New Hampshire	10.7	10.9	10	10.3	.....	.....	.....	.....	10.7	10
Vermont	11	10.6	10.8	10.6	.....	.....	.....	.....	10.6	10.3
Massachusetts	9.7	10	10.7	9.1	.....	.....	11.5	10	9.5	9.5
Rhode Island	10.2	10.2	10.2	9.5	10	10	.....	.....	10.5	8
Connecticut	9.6	11	11.3	10.6	.....	.....	10.6	11.3	8.3	7.5
New York	10.2	10.3	9.9	9.9	10.8	10.1	9.6	9.8	10.2	9.9
New Jersey	10.5	10.3	11	10.9	10.1	10.4	10	10	9.8	9.6
Pennsylvania	10.5	10.1	10.6	10.8	10.3	10.1	9.8	9.7	9.7	9.6
Delaware	9	10	11	10	9	10	.....	.....	9	10
Maryland	10.6	9.9	10	9.8	9.1	9.5	7.3	9	9.9	10.1
Virginia	10.8	10	9.2	9.2	9.8	9.3	10.4	9.4	9.7	10
North Carolina	13	10.9	10	9.8	9.4	9.2	10.2	10.1	10.4	12.3
South Carolina	12.6	10	9.4	9.8	10.1	9.5	10.2	10.2	10	10.8
Georgia	9.4	9.3	10.3	10	9.9	9.7	9.4	9.8	9.7	10.1
Florida	11.8	10.6	9.3	9.6	13	11	9.6	9.3	.....	11.2
Alabama	8.8	8.8	8.8	9	10.6	10	10.6	10.1	9.6	11.1
Mississippi	14	10.3	10.7	9.6	11.4	9.7	10.5	9.5	12	13.5
Louisiana	15.1	10.7	13.2	11.5	13.9	10.6	15.3	11.8	10	14
Texas	10.3	9.7	11.3	10.6	12.4	10.7	10.1	10.1	11	11.4
Arkansas	15	10	11.1	9.8	11	10	14.5	11	11.2	12.1
Tennessee	10.9	9.2	9.4	9.1	8.3	8.8	9.8	9.8	10	10.1
West Virginia	10.3	9.5	9.4	9.1	9.6	9.6	9.6	9.7	10.1	10.1
Kentucky	12.5	10.5	11.9	10.7	10.9	10.2	11.6	10.7	11	10.4
Missouri	10.7	9.1	9.5	9.3	10.1	9.6	9.4	8.9	10.1	10
Illinois	11.4	9	9.7	9.7	9.7	9.3	9.6	9.6	9.6	9.6
Indiana	11	8.5	10.4	9.9	9.8	10	9.8	9.8	9.2	9.4
Ohio	11.1	10.1	10.6	9.8	10.6	10.4	9.9	10.3	9.6	9.8
Michigan	9.8	9.6	9.7	9.4	9.5	9.7	9.8	9.9	9.4	9
Wisconsin	11.7	10.6	8.1	9	8.5	9	7.6	8	9.7	9.7
Minnesota	13.9	13.6	10.6	10	.....	.....	10.2	10.1	11.9	10.3
Iowa	11.5	9.4	10.6	10.2	9.7	9.7	9.7	8.8	9	9.3
Kansas	5.5	6.5	8	9	9.6	9.6	8.7	8.5	7.4	8.5
Nebraska	9.4	8	10.9	9	9.5	8	7	7.5	7.9	9
California	12.2	10.2	13.2	11.2	10.5	10.2	10.6	9.6	11.5	10.8

Condition of the crops, &c., on the 1st day of November, 1868—Continued.

STATES.	HAY.		BUCK-WHEAT.	FLAX.	COTTON.		SOR-GHUM.	SUGAR-CANE, (not sor-ghum.)	GRAPES	APPLES.	PEARS.
	Average product compared with 1867.	Quality of the same.	Average product compared with 1867.	Average product compared with 1867.	Average indicated product compared with 1867.	Average indicated product (lint) per acre, in pounds.	Average product compared with 1867.	Average indicated product compared with 1867.	Product compared with an average crop.	Product compared with an average crop.	Product compared with an average crop.
Maine	11.7	10.1	9.8	9.6	.....	.....	.....	.....	7.5	10.1	8.3
New Hamp.	11.5	11	9.6	.....	.....	.....	.....	.....	9	10.9	8.5
Vermont	10.1	8.5	7.5	9.5	.....	.....	.....	.....	10	8.6	9.5
Massachus'ts	11.7	9.2	8.8	.....	.....	.....	.....	.....	8	12	7.6
Rhode Island	10.7	11.2	10.5	.....	.....	.....	.....	.....	7.6	7.5	6
Connecticut	12.3	10	9.3	.....	.....	.....	7.6	.....	8.6	9	8
New York	11.4	10.1	9	9.4	.....	.....	10	.....	10.5	8.7	8.6
New Jersey	10.8	10.5	11	10	.....	.....	7	.....	8.1	3.2	5
Pennsylv'nia	10.1	10.1	9.3	9.5	.....	.....	7.5	.....	9.2	7.3	7.7
Delaware	11	10	11	10	.....	.....	5	.....	6	1	4
Maryland	10.3	10	9.5	10	.....	.....	9.7	.....	8.1	4	7.2
Virginia	10.1	10	11.2	9	.....	.....	9.1	.....	9.6	5.5	5
N. Carolina	10.4	9.9	10.5	8.9	9.4	176	9.6	.....	6.5	10.3	10.8
S. Carolina	11.2	9.6	.....	.....	8	127	10.6	.....	7.3	8	9.5
Georgia	10.4	9.8	.....	.....	8	147	10.3	11.6	9.5	13.8	13.2
Florida	8.5	10	.....	.....	6	150	.....	13.1	.....	.....	.....
Alabama	9.3	9.4	.....	.....	8	150	11.3	.....	9.5	12	9.9
Mississippi	10.7	10	10	.....	10.5	205	13.1	11	11.1	11	9.9
Louisiana	9	8.6	.....	.....	17.3	266	14	22.5	16.2	11.5	15
Texas	10.2	9.8	.....	.....	13.3	277	10.9	11.5	19.2	11.3	10.5
Arkansas	10.5	9.3	.....	.....	12	300	13.3	.....	11.7	10	10.4
Tennessee	10.1	9.4	11	9.1	11.5	140	11.5	.....	9.4	8.8	7.5
W. Virginia	9.1	9.8	9.5	9.7	.....	.....	9.8	.....	9.4	5.7	6.8
Kentucky	10.9	9.8	10.6	10	.....	.....	11.2	.....	9.1	6	6
Missouri	9.6	9.7	9.3	10	.....	.....	10.9	.....	11.1	7.5	7.8
Illinois	10	10.1	8	9.1	.....	.....	9.7	.....	10.6	4.6	6.3
Indiana	10.6	10.2	9.3	10.4	.....	.....	10.7	.....	10.3	4	7.2
Ohio	9.6	10.1	9.7	9.6	.....	.....	11	.....	9.2	7.5	8.1
Michigan	10.7	10.1	9.8	12.2	.....	.....	9.4	.....	9.4	6.9	8
Wisconsin	9.3	10.2	8.9	9.7	.....	.....	6.7	.....	8.9	5.3	5.7
Minnesota	11.1	10.2	11	11.2	.....	.....	11.5	.....	10.5	10.2	.....
Iowa	10.4	10	8.2	9	.....	.....	11.1	.....	9.7	8.1	7.6
Kansas	7.3	9.2	7.5	7.4	.....	.....	8.6	.....	10.5	11.1	9.7
Nebraska	10.2	10	9.4	10.8	.....	.....	8.7	.....	9.2	8.5	9
California	12.4	10.2	9.5	10.5	.....	.....	10	.....	10.1	10.2	10.7

EXTRACTS FROM CORRESPONDENCE.

PEACHES IN NEW JERSEY.

Morris county, N. J.—I have been engaged here since 1856 in the cultivation of nurseries and orchards, making the cultivation of peach trees a specialty. I find that new varieties, such as the Mountain Rose, Stephens's Rareripe, White Rareripe, Keyport White, &c., (all free-stone fruit,) are more profitable to cultivate than the old varieties, such as the Oldmixon, Crawford's Early, and late Malacatons, Walter's Early, Honest John, Smock Peach, Morris White, &c., the new varieties being the most productive, hardiest, and healthiest. The Pride of Essex (cling) is the largest white cling I have ever seen. I measured one that was over 12 inches in circumference; it is very sweet and juicy, ripening here about the 1st of October; very handsome, with a clear white skin. Peach trees are cultivated very extensively in this county, particularly in the townships of Morris, Mendham, and Passaic. We had good crops of peaches in 1862, 1863, 1864, and 1865, the last being very heavy. In 1866 the cold weather destroyed the fruit buds, causing an entire failure for that year; in 1867 the crop was light; this year there were only a few orchards that had any fruit on, and those were well protected from the east winds, being covered by heavy forests or high ground, situated on the side of hills. The Mountain Rose succeeded better than any other variety. I think the Mountain Rose is the best early variety cultivated; for flavor, color, productiveness, &c., it is unsurpassed. Apple trees and grapes were destroyed this year in consequence of the wet weather.

WINE AND FRUITS IN UTAH.

St. George, Utah.—We are now wine-making, and I think our little village will this year make near 4,000 gallons, and a considerable amount of raisins—and our colony is but eight years old. To-day I ate a pomegranate. We raise rice and sweet potatoes, and grow the tenderest grapes out of doors. Our season of heat is the greatest, longest, and most even, and the grapes the sweetest I have ever seen. The following data may be of interest: July 15, apricots ripe; June 15, thermometer up to 105 in the shade at noon; July 7, ripe figs; July 6, wall cherries ripe; July 8, Israella grape colors; July 8, tomatoes ripe; July 8, Codling and Sweet Bough ripe; July 10, first ripe peach; July 10, Japan lilies in bloom; July 12, white Chasselas grapes ripe; August 1, Old Mission begins to ripen; August 1, Black Hamburgs coloring; October 20, pomegranates ripe.

THE BLACK TARTARIAN CHERRY.

A correspondent writing from Germantown, in reference to the origin of this cherry, says:

Permit me, very respectfully, to call your attention to plate XI, page 147 of the Report for 1864, wherein a description of the "Black Tartarian cherry" is given, and the statement made that it came to this country "about 1806." I have seen the same quotation made by other writers, but I know of the fruit being in this country as early as 1790. The original tree was cut down about ten years ago, but grafts taken from it are now to be had. The engraving of the fruit in the report is much better than any I have seen before.

CORN.

Sagadahoc county, Me.—Corn would have been above the average had it not been for early frost, which was very severe on the nights of the 17th and 18th of September, but little corn being ripe at that time.

Burlington county, N. J.—I have never seen a better corn crop in our county and it ripened nicely before frost.

Indiana county, Pa.—The corn crop will be a short one; that is, for sound, merchantable corn. The frost of September did this damage. I think not more than a half crop will be saleable. The frost and the drouth have made a pretty short crop.

Baltimore county, Md.—The favorable weather, and the continued rain in due season, created a heavy crop of corn. Our crop is estimated at 1,400,000 bushels, the best yield since 1860.

Kanawha county, W. Va.—The corn crop, as to quantity, has exceeded expectation; but it is discovered that there will be considerable rotten corn amongst it, no doubt caused by the severe wet weather in September.

Bedford county, W. Va.—Corn greatly injured by drought, but the acreage being greater than last year, I estimate the crop at the same.

King George county, Va.—The corn has been mostly gathered in fine condition; the crop on good land, well cultivated, being the best for many years. The large quantity cultivated slovenly by the freedmen reduces considerably the average crop.

Middlesex county, Va.—The warm wet weather has considerably damaged the corn crop.

Duplin county, N. C.—Corn we have in plenty, for our own support, and a little to spare; the present year we have had to buy largely. The increased production is to be ascribed first to the season; secondly, better cultivation, and the large amount of cotton-seed used as manure.

Osage county, Kan.—The corn crop is only half that of 1867; it will in all probability not reach that amount. Many fields in this county will not yield five bushels per acre; and much of what is raised is eaten by worms. Up to July 1, the prospect was very flattering, but the extreme heat of that month injured it severely.

Stark county, Ohio.—Corn is good in quality and product where the first planting remained; where fields were injured by worms there is a large proportion of soft corn.

Madison county, Ark.—The continued rains during the past months of September and first of October, with heavy winds which have blown down the corn, have caused the larger portion of the crop to rot.

Greene county, Ga.—My corn crop exceeds anything of the kind that my eyes have ever beheld. I have a piece of river bottom that will yield 50 bushels to the acre, and I hope to sell 2,000 bushels this year.

Russell county, Ky.—The yield of corn has been better than for years past, but will not produce near as much money as last year. Corn sold last fall at 60 cents per bushel; corn can be bought now at from 25 to 30 cents.

McDonough county, Ill.—We had some severe frosts last month, which caused a good deal of injury to the late corn, which happened to be unseasonably green in consequence of September rains. Perhaps I overstate the injury, but farmers complain a good deal.

Warren county, Ill.—Our corn crop promised to be much larger than stated in my report, but was damaged and made lighter by the frosts, about the middle of September—except the earliest fields.

White county, Ind.—Corn crop seriously damaged by frost in September.

Marion county, Iowa.—Of corn there is a heavy yield, but it is somewhat injured by frost, being 10 days earlier than usual.

Fannin county, Texas.—Corn is not yielding as well as anticipated, having been injured by drought.

Walker county, Texas.—The corn crop of this county is equal to that of 1865, when little else was planted.

Grayson county, Texas.—The corn crop is short in consequence of the drought, both in quantity and quality, at least one half.

Ellis county, Texas.—Corn crop falls one-fourth below the expected yield, on account of the drought.

COTTON.

Beaufort county, N. C.—The crop of cotton is much better than in 1867, but the quantity planted is much less.

Franklin county, N. C.—It was at one time thought that the cotton crop would yield one-third less than last year, but it is coming in better than was anticipated, and the season has been of late favorable.

Duplin county, N. C.—Cotton is nearly all picked out, and we can estimate the crop with a degree of certainty. The yield is above an average one. The army worm appeared September 10, and ate the leaves entirely off of two-thirds of the cotton, but I don't think they injured it in the least. The rust also was very general but has not seemed to injure cotton to a great extent Our cotton has opened much earlier than usual the present year. The freedmen have generally worked well and cheerfully, much better than the past year.

St. Clair county, Ala.—Cotton has been cut wonderfully short by the worms, worse than anticipated early in the season.

Randolph county, Ala.—The last days of August the worm stripped our cotton of leaves and all bolls not grown. More cotton planted in our county than ever before; bid fair for a good crop until the approach of the worm.

Putnam county, Ga.—The average yield of cotton is about a bale (450 to 500 pounds) to three acres. The late season has improved the crop somewhat since last return. The worms reached this county too late to materially injure the crop.

Stewart county, Ga.—The cotton crop was injured in early spring by protracted wet weather. This period of excessive rain was followed by one of drought of about nine weeks continuance. After this the caterpillar made its appearance, stripping entirely of its foliage most of the cotton in the county. In addition to this the boll worm has committed ravages to a most unprecedented extent, besides the average is not estimated at more than eight-tenths of 1867. All these unfavorable circumstances considered, it is no matter of surprise that the present crop should not exceed six-tenths of the crop of last year.

Holmes county, Miss.—Cotton is doing well in the way of opening, and the valley yield will be large compared with the two preceding years, but in the hill portion of the county the worms did a great deal of damage, and the crop is consequently short. I send you some cotton, a sample of my crop known as the Peeler long staple. All who have seen it say it is a decided improvement on the original. I purchased seed this year at $3 per bushel, and the variety of cotton is now selling at about 50 to 60 per cent. on common staple produced. I hope to make six, perhaps seven, bales off nine acres, and have, on the first picking, off of one and a half acres, obtained 1,240 pounds seed cotton. Deducting two thirds for seed, I have quite a commercial bale of lint cotton. I think it every way an improved variety. It is better limbed and better bolled, and though this has been a bad fall for cotton, and the worms injured it materially, yet if I had had seed at first to replant, and secure a good stand, I would have made over a bale to the acre.

Grayson county, Texas.—The cotton crop was also injured, first, by reason of the wet weather, then the drought, and to some extent by the caterpillar, so that the crop will not be more than two-thirds.

Walker county, Texas.—The cotton crop of this county this year is about equal to two-thirds of an average crop, being about double the amount raised last year.

Fayette county, Texas.—Cotton is a special crop in our county, and our planters are turning their attention to a small, curly prolific variety that will mature a crop by the first of September, thus in a great degree escaping the ravages of the worms. This cotton is yielding this year, on upland, three-quarters to a bale per acre, although the worms appeared in it the last week in August. The crop in the county will average a little over one-quarter of a bale per acre this year.

Sorghum is attracting considerable notice as a crop. It will yield, when properly cultivated and manufactured with the improved iron mills and evaporators, at each cutting, four barrels, of 40 gallons, of sirup, 50 gallons of superior vinegar, and 30 bushels of seed. The sirup is worth 80 cents (specie) per gallon; the vinegar 50 cents per gallon; and the seed 40 cents per bushel. It will make two crops in a year.

In the fruit line, peaches, plums, apricots, nectarines and pears thrive well and produce abundantly. The early varieties of apples will grow and produce some fruit. Small fruits, the blackberry, dewberry, and strawberry, thrive well. One of my neighbors has 1¼ acre in peach trees, from which he derives an annual profit of, say $500, besides supplying his own large family. They are seedlings, and it must be remembered that we have as yet no market for the fruit in its fresh state. When railroads penetrate into the interior of our State we will doubtless do well in producing early peaches for a more northern latitude, and sell at high rates.

Fannin county, Texas.—Cotton is not yielding as was expected; much of it was injured by caterpillars and boll-worms. Severe frost on the 5th and 6th instants destroyed a large amount of bolls, that of an ordinary season would have matured. Late cotton is very much injured. The owner of a field of 20 acres late cotton told me he would lose fully one-fourth, perhaps more, but there are not many such cases as that. The amount of cotton planted was greater this season than last, yet I think the crop will be lighter than most of men are willing to believe.

Arkansas county, Ark.—The crop of 1867 was a very bad one, and the average yield was less than 200 pounds of lint per acre; this year the average is less. One and one-fourth bale is the average amount of cotton picked to the hand, up to the present time; but I fear much cotton will be lost if the weather should be bad, in which event the crop may fall 20 to 30 per cent. below my estimate, and not above that of last year.

Ellis county, Texas.—Cotton grew well until the rain set in, followed by unusually hot weather, causing the cotton to shed all of its squares, or so nearly all that in many instances the ground was covered with the fallen squares; still we have an average yield.

Panola county, Miss.—The worm destroyed some cotton, but less in this county than in any other portion of the State.

Rutherford county, Tenn.—I am convinced that the estimate made August 1—16,200 bales as crop of this county will be near the mark; the staple is better than last year.

Clark county, Ark.—The drought in August materially lessened the cotton and corn crop, though a fair crop of each, at least double that of last year, has been made.

Prairie county, Ark.—The acreage planted in cotton was about 20 per cent. less than last year, yet the crop exceeds that of last year by about 100 per cent. The product of this county will be about 7,000 bales, against 3,400 last year.

Leon county, Fla.—The cotton crop is nearly gathered. I do not think there remain 50 bales to gather in the county. The crop was first shortened by a wet season, just as it got fairly to bearing, and then it was cut off earlier than ever before by the caterpillar.

POTATOES.

Addison county, Vt.—There were no potatoes of any account the middle of September, but from that time to the 15th or 20th of October they grew to be a fine crop both in quantity and quality.

Burlington county, N. J.—Early potatoes were light; late, heavy; in some localities a loss from rot, especially among Monitors, but not so much as last year; one large grower reports loss of one-third of his crop.

Delaware county, Penn.—In 1867, in this part of our State, we lost almost all our potatoes by rot. This season the crop was large where it was not destroyed by wet weather in the spring.

Indiana county, Penn.—Potatoes are about a half crop and in quality not a half crop.

Hancock county, Ill.—Potatoes yielded poorly and are quite deficient in quality.

Appanoose county, Iowa.—Potatoes were ruined by the bug.

Portage county, Ohio.—The great drought of July and August has injured the crops with us very much, but potatoes grew rapidly when the rains came so that where they had set in the hill they have made a large growth, but of inferior quality as compared with average crops, being watery and heavy; still they may be considered fair; we have hundreds of thousands of bushels to export.

Marion county, Iowa.—Potatoes were nearly destroyed, or apparently so, by bugs; some peculiarities of the species are long in shape, very lively, in color from ash to slate, and their numbers "were legion," enough to defoliate a potato patch in three hours after reaching it; subsequently, however, the plant revived, and the result is better than was at first anticipated.

Marion county, Mo.—Potatoes turn out far better than reported yield, and quality good.

SORGHUM.

Salt Lake City, Utah.—Our sorghum is greatly inferior to that of previous years; the cane has little juice compared with other seasons, the stalks are filled with an almost sapless pith, and what juice is pressed out is devoid of sugar to a great extent; it takes from 8 to 20 gallons of juice to make one gallon of sirup. One enterprising, good-managing farmer got only 30 gallons from ground which yielded 100 gallons last season, though his land was properly attended to.

Clark county, Ark.—I planted the cane seed sent in the spring on good upland, and made 104 gallons of sirup from the quart of seed planted on three-quarters of an acre; the largest cane measured 19½ feet in height and 8¼ inches in circumference.

Lewis county, Mo.—The crop of sorghum was good, but was neglected in order to save the corn fodder.

Graves county, Ky.—The sorghum crop is 20 per cent. above that of 1867.

McCracken county, Ky.—Our sorghum crop was very fine, but a frost came before much of it was cut, which affected it a good deal; the molasses seems to be very good.

Sangamon county, Ill.—Sorghum makers say it takes double the usual quantity of juice to make a barrel of molasses this year.

TOBACCO.

Baltimore county, Md.—The tobacco culture is getting smaller every year, being discontinued altogether in many localities; corn culture is taking the place.

Bedford county, Va.—Drought retarded the growth of tobacco, but when rain came ripening was delayed until frost destroyed a great many entire crops, and injured all more or less.

Randolph county, W. V.—The tobacco crop is indifferent.

Groves county, Ky.—Tobacco very fine, not eaten much by worms, housed in good order, very little damaged by frost; some little cut too green.

Pendleton county, Ky.—The crop of tobacco is unusually large and fine in this county.

Osage county, Mo.—The fall rains kept tobacco from ripening, and on the 7th of October we had a frost that destroyed two-thirds of the entire crop.

McCracken county, Ky.—The tobacco crop has probably never been excelled in this county; most of it was well matured before cutting; we have had very few worms, so that our tobacco is very nearly whole, which greatly improves the quality of the crop. The season has been rather wet to cure tobacco of a very fine color, but our crop is mostly a very nice red; some, however, is fine piebald, hickory leaf, &c.

THE LUNG PLAGUE OF CATTLE.

NEW YORK, *December* 31, 1868.

SIR: I have the honor of transmitting to you a brief preliminary report on the contagious lung disease of cattle, in accordance with your instructions of the 7th of November.

It has been my aim to devote less space to details of visits and cases examined than to the general history and the best means of preventing the disease. The motive which has actuated me in this has been your desire to condense in a short memoir the facts and suggestions best calculated to insure the adoption of rational means for the complete extinction, on American soil, of a disease that is entirely of foreign importation.

I have the honor to be, sir, your obedient servant,

JOHN GAMGEE.

Hon. HORACE CAPRON,
Commissioner of Agriculture, Washington, D. C,

I. NAMES BY WHICH THE DISEASE IS KNOWN.

The earlier outbreaks in the British Isles of a very fatal form of inflamation of the organs of respiration were described under the title, "New Disease." Reports from Germany soon indicated that the malady was the "Lungenseuche" of the Germans, the "Péripneumonie contagieuse des bêtes bovines" of the French, the "Polmonea dei bovini" of the Italians. It was, therefore, soon identified in England under the names of the "lung disease," "pleuro-pneumonia," and "contagious pleuro-pneumonia of cattle." It was truly a new disease in England, and the readers of our great and pains-taking veterinary compiler Youatt can be assured that had the malady existed in England at the time he wrote, 35 years since, it would have received very different notice at his hands than reference, under the head "chronic pleurisy," as a "species" of this disease, "or of mingled pneumonia and pleurisy." All he knew on the subject he translated from a French journal*, in which Professor Lecoq described the affection as it occurred at Soire-le-Chateau, in Avesnes, France.

* Recueil de Médecine Vétérinaire, 1833.

II. WHAT IS THE DISEASE?

An Epizootic.—The lung plague is a fever attacking cattle, of a purely contagious character, spreading from farm to farm and country to country as an epizootic, and exclusively in the lines of communication established by the cattle trade. It never originates spontaneously. All domestic cattle, whether high or low bred, are alike subject to its ravages, without distinction even as to sex, age, or condition. Milch cattle have been destroyed in by far the largest numbers, inasmuch as the facilities for communication to this class of cattle have been greatest. The lung plague is, in my opinion, a disease of the greatest antiquity, and during the past century numerous reports from all parts of Europe, and wherever it has been transported, indicate that in all climes and at all seasons it presents well defined and immutable characteristics as to its insidious origin and propagation, symptoms, fatality, and incurability.

The poison, or virus.—The poison of the lung plague is deposited in varying amounts, but usually to the extent of many pounds weight, and not unfrequently as high as half a hundred weight, in the lung tissues, cavities of the chest, and air passages. The same poison may be reproduced in any part of an ox's system as the result of inoculation, and its development is usually co-extensive with the mass of areolar or connective tissue—the tissue that binds the skin to the tissues beneath and all the tissues to each other—into which it is introduced on the point of a needle, or by injection. The deposit is limited in parts sparsely supplied with this connective tissue, or where the parts are firmly enveloped by skin, as towards the end of the tail or tip of the ears. But occasionally even the greatest care in introducing a small quantity of virus on the surface of the skin without penetrating the more open textures below, results in extensive swellings due to a deposit which is identical with that occurring in ordinary cases of this lung complaint.

Tests for the poison.—Attempts have been made to discover microscopical or chemical tests for the poison. The only test is the physiological one, viz: the development of the same poison capable of indefinite propagation among cattle. It is only recognizable in the diseased animal, and every ox, bull, cow, or calf showing signs of such contamination should be dealt with as a bottle of poison, a carrier of pestilence, breathing forth, even when its pulse is quiet, nutrition unimpaired, and it is convalescent, quite enough of the same poison to kill hundreds and thousands of its kind.

Infection.—The malady has been recognized as infectious, that is to say, the poison is diffused through the air by the breath of sick cattle. The poison is not gaseous or volatile. The solid elements in its composition like the solid germs of decay, or the delicate seeds of plants are carried by atmospheric currents. Myriads impinge on inert matter, but any passing into the air passages with the air breathed by cattle produce a local change, which is at first slow and unobserved, usually followed by a general fever, and in any case attended by the expulsion of abundant volumes of a similar material.

Inoculated disease not infectious.—Some years' experience and a large number of observations in various parts of Europe would indicate that when the virus is developed in or beneath the skin it remains in the system of the inoculated animal, the lungs are not affected, and there is no communication of the disorder except by inoculation. It may safely be accepted that the inoculated disease is, as a rule, not infectious.

The virus of lung plague, when transmitted through the atmosphere, can alone be preserved and transported in the breathing organs of susceptible cattle, which reproduce it. It is not carried, so far as we know, by other animals.

Incubation of the poison.—It may lie latent for a considerable time. Usually the period required for inducing obvious symptoms of sickness extends over 30

to 40 days, but during this time it is producing local effects, as proved by the results of inoculation, which are obvious nine days after the operation.

Latent effects.—It has been supposed that an animal may be infected and remain in health for several months. This is an error. The virus sometimes induces local changes without outward manifestations such as usually arrest attention. Its development under some circumstances is slow, and the affected animal or animals beginning later than usual to discharge poison into the air retain the faculty of communicating the disease until an almost complete recovery. The lung plague has therefore a latent stage in all cases, and in some it assumes what pathologists term a latent type, whereby its earliest attacks pass unnoticed.

Preservation of the virus.—The most certain means of preserving the virus for artificial propagation is by maintaining, as one gentleman has especially done near Glasgow, sick cattle, infected in succession.

By transmission.—An animal that has once had the disease is incapable of reproducing the poison, and although there are a few isolated cases of tardy relapse which would seem to indicate that a second attack of the malady may occur in an animal, it is almost universally admitted that, as in the case of other true epizootics, the lung plague attacks an ox but once in its lifetime.

In bottles.—The owners of cattle, and especially dairymen, have adopted the plan of preserving the virus for periodical inoculations in common bottles provided with a cork. The matter thus kept decomposes, but retains for many months the power of producing the usual and, generally aggravated, results after inoculation. This is a fact well worthy of careful inquiry and most suggestive to the many now engaged in tracing the history of animal poisons.

With glycerine.—It was proposed, first in Australia, to mix the lymph from the lungs with glycerine. After many trials I had to abandon this plan, inasmuch as the glycerine impaired and ultimately destroyed the virus.

Desiccation.—The lymph obtained by draining the diseased lung may be placed between strips of glass and dried; as vaccine lymph does under similar circumstances, it retains its power for many months.

Destruction of the virus.—Preparations of chlorine, iodine, bromine, sulphurous acid, carbolic acid, sulphate of iron, &c., destroy the virus and render it inert.

III. WHAT CIRCUMSTANCES FAVOR THE TRANSMISSION AND REPRODUCTION OF THE LUNG PLAGUE POISON.

Contact of sick and healthy.—Approach of sick and healthy susceptible cattle is the fundamental and essential cause of contagious pleuro-pneumonia.

Cohabitation not necessary, but the most common cause.—Transmission of the disease does not require cohabitation. The most common means whereby the virus spreads is undoubtedly by sick or convalescent cattle being admitted into sheds, yards, or pastures, and retained in close proximity with other animals; but a variable degree of susceptibility is noticed from the animals first seized being often at the most remote part of a stable into which a sick beast has been introduced. There is some uncertainty in observations of this kind, from the fact, already stated, that some cases are latent and symptoms being very imperfectly observed by farmers and the usual attendants on stock.

Exposures in the open air, communication on railroads.—The communication of the disease in many European cities is due to the exposure of sick cattle for sale in public markets; the driving of sick cattle on roads; the transportation of diseased animals in railway cars in which, or in cars adjoining which, are healthy cattle. The ready propagation of the virus under these circumstances is generally admitted, and an inquiry into many outbreaks shows that when the disease enters among cattle in the fields it is often more rapidly fatal, less frequently latent, and better calculated to alarm stock owners than the more insidious

ravages by the disease in confined sheds. This is singular and not commonly known.

Malady aggravated by turning cattle out.—It has been observed that a stock of cows, among which the disease had been lingering, may be rapidly thinned by deaths from the disease if turned out to grass in spring. Deaths have been more frequent and rapid when cows have been turned out for some hours daily and housed at night than when they have not been moved from their sheds.

By free ventilation.—The disease having been introduced among stall-fed cattle kept in warm, and even ill-ventilated stables, the symptoms have been aggravated and deaths occurred much more rapidly after ventilating apertures have been made facing the heads of the cattle, and especially if such openings were made to the north and produced cold draughts through the stable. These facts have constantly led to the confounding of contagious pleuro-pneumonia with colds and ordinary inflammations of the lungs.

The disease transmitted by offal.—The only circumstances under which I have known the lung disease to be communicated when there has been no immediate contact between living sick and healthy cattle has been on fields adjoining slaughter-houses, when cattle suffering from pleuro-pneumonia have been slaughtered. It is evident, however, that even in this case the sick cattle have breathed in the vicinity.

How far the virus may be carried in the air.—We do not know how far the virus will be carried in the atmosphere. Usually the distance is very short. If a cow driven along a road communicates the disease, she does it by cattle approaching and drawing her breath as they rub their noses against each other.

Influence of the introduction of steam in spreading the lung plague.—The history of the lung plague, which is dealt with in another section of this report, indicates that the introduction of steam has been a most active cause favoring the transmission of the malady. The wants of large cities, and the advance made towards annihilating distance as one of the impediments to the cattle traffic, have led to the dissemination of the disorder.

Cities "fixed stations" of the disease.—In large towns, where cows are kept for dairy purposes, it is necessary that frequent purchases be made. This tends to render cities "fixed stations" for the reproduction of the lung plague poison, and of these stations the most important and the oldest in America is that of Long island, in and around Brooklyn.

Cattle-feeding districts liable.—In Europe, those portions of countries where cattle are fed for the butcher and not bred—for instance, Fife in Scotland, Norfolk in England, and Meath in Ireland—are, next to the large cities, ravaged by the disorder.

Breeding and exporting districts usually exempt.—The breeding and exporting districts, like Texas and the western States of America, escape, except where blood-stock is introduced from infected countries to improve the breeds.

The long period of incubation and the frequently latent cases of the disease explain its propagation from England or Holland to the United States, the Cape of Good Hope, and the Australian colonies.

IV. SYMPTOMS OF THE LUNG PLAGUE.

Premonitory symptoms in herds.—When pleuro-pneumonia is introduced in a dairy or on a farm it is not unusual to have newly-bought animals sickening and dying. At other times an ox or cow recently bought thrives, and an expert auscultator is required to indicate that the animal is but recovering from the disease.

Incubation of the disease.—Not uncommonly a herd thus contaminated remains healthy for six weeks or two months from the date of the last purchase. Often no indication of sickness is recognized by the farmer for as long as three

and four months. A general unthrifty look of the cattle, and a frequent cough, especially if the animals are turned out of a warm stable daily into the cool air, may be observed. Soon one animal and then another from different parts of the same stable droop and show signs of sickness.

In Europe town dairymen have noticed that their first cases usually occurred in fresh cows, often transmitted to markets from healthy districts, but which have been confined in railway trucks or in markets in contact with sick cattle. These animals, bought at the time of calving, remain healthy until they come in season, and immediately after taking the bull show signs of the disease. It has been thought by town dairymen that they might prevent the disease if they could only prevent the cow going to the bull; and the idea of spaying has been entertained, though never adopted to any great extent. The experience of town dairymen affords a conclusive proof of the apparent length of the latent or incubative stage of the disease, and that experience is supported by numerous other observations and experiments.

I should be disposed to believe that the first changes in the lungs occur as rapidly after ordinary infection as after inoculation, and experiments on this point are well worthy of being instituted. The period of incubation in inoculated cases may be as short as seven days. It is often nine, and there are cases, of which a considerable number have come under my observation, in which the local eruptions and swelling have not manifested themselves under twenty or thirty days.

Invasion.—The earliest changes in the lung tissue occur slowly and without producing marked general disturbance. In examining infected herds it is usual to find animals in apparent health, which on auscultation reveal the abnormal sounds caused by the rush of air through inflamed bronchial tubes. So latent is this condition that I have known expert butchers purchase cattle that I have ordered to be isolated. They have paid full prices, doubting my opinion; and on keeping the animals that they might improve in condition on extra keep, the outward symptoms of the disease have appeared in from one to three weeks from the date I had condemned them. At this stage there is usually a slight elevation of temperature, amounting to one or two degrees.

Obvious premonitory signs.—The obvious premonitory signs are shivering fits, as in ordinary fever, but their transient and mild character lead to their often being passed unnoticed. The animal's coat looks dull, staring, and the skin is often rigid. An occasional cough of a dry and harsh character is noticed, and, when inspecting a herd in a field, if the cattle are made to move briskly several will be found to cough. For some days the cattle appear to thrive well, and milch cows yield a copious amount of milk. It has been remarked that they appear full—indeed fuller in the early morning than other animals which, like them, had not fed since the previous evening. The excrement is dry and urine somewhat scanty.

An expert dairymaid in the habit of milking cows where the disease prevails is apt to notice, as the malady declares itself, that there is some stiffness, and the milk is not so freely drawn as usual. The quantity of this secretion then diminishes.

The progress of the malady is then characterized by loss of appetite, altered gait, segregation of the sick from the healthy in the field, the sick standing with their elbows turned outward, their feet drawn forward, neck and head extended, and nostrils somewhat convulsively expanded at each inspiration. There is quickness of breathing, especially if the animal is even slightly disturbed, and on the slightest movement there is an audible grunt. The expression of countenance indicates uneasiness or absolute pain, and the eyes are prominent and fixed. The pulse rises to 70, 80, and even 100 beats per minute. In hot cow sheds the pulse is more frequent than in the open field in healthy cattle, and a corresponding increase is seen in this disease under simi-

lar circumstances. The respirations rise to 35 and 40 per minute, are labored, audible, and each expiration is often associated with a short characteristic grunt. This grunt is especially marked if the sides of the chest or the spine are pressed, and many years ago Leroy showed that graziers regarded this as a decisive symptom of the malady. A somewhat watery discharge from the nose, increased in the act of coughing, is noticed early in the disease, and driving sick cattle in the earliest stage produces much thirst, and there is a ropy saliva discharged from the mouth. The muzzle is hot and dry.

Cattle suffering from this disease as it advances are readily identified by persons having seen a few cases. They stand motionless, with protruding head, arched back, extended fore limbs, with elbows turned as far out as they can be held, and the hind limbs drawn under them, with knuckling at the near hind or both hind fet locks. When lying, especially in the latter stages of the disease, they rest on their brisket or lie on the affected side, leaving the ribs on the healthy side of the chest as much freedom of motion as possible.

As the disease advances the pulse gets more frequent and feeble, and the heart's beats, which are at first subdued, become marked and palpitating, as in cases of poverty or anæmia. The membranes of the eyes, mouth, and uvula are usually pallid, though the membrane of the nose is often red. The tongue is foul, covered with fur, and the exhaled breath has a nauseous and even fetid odor.

Listlessness, grunting, grinding of teeth, diminished secretions, weakness and emaciation, increase with the progress of the malady. The animals getting weak, lie more. They sometimes show symptoms of jaundice, have a tendency to hove or tympanitis from gases accumulating in the paunch, and their gait is so staggering that they appear to suffer from partial paralysis of the hind quarters. As all these aggravated symptoms declare themselves the pulse gets weak and often rises to 120 per minute; the breathing gets more frequent and labored; the animal gasps for breath. The spasmodic action of the nostrils is very marked, the grunt very audible, and there is a peculiar puckering of the angles of the mouth. The temperature, which is elevated during the acute stage of the disease, is irregularly up and down, according to the complications of the disease, and there is great tendency to coldness of the horns and extremities. Abortion is not an uncommon accident. The constipation which is a very common symptom of the lung disease is apt to be followed by diarrhœa in the later stages, and this is also associated with a considerable discharge of clear-colored urine.

Auscultation and percussion are valuable aids in the diagnosis of lung plague. Most persons can with a little care distinguish the sick from healthy cattle by listening to the sides of the chest. It does not require a skilful expert to recognize that the ribs are motionless and flattened over the consolidated lung, that there is an absence of resonance on striking the ribs over the affected region, and that the ear distinguishes a very distinct respiratory murmur wherever the lung is pervious, and an absence of this sound where the lung is transformed into a solid mass.

At an early stage of pleuro-pneumonia there is a harsh sound, roar, or rhonchus produced by the passage of air through the windpipe and its subdivisions. This varies in intensity in different cases, as some animals have more exudation on the mucous surface of the air passage than others, and the leathery-looking shreds of lymph adhering to the inflamed membrane vibrate as the air rushes past them and give rise to the harsh sound which may sometimes be heard by persons standing by a sick animal. In many cases one lung alone is affected and then the respiratory murmur is more distinct than in health, wherever the lung tissue is pervious, whereas there is a total absence of sound over the consolidated organ. Occasionally an air passage remains open through a mass of hardened lung, and the air rushing through this rigid bronchial tube makes a very decided whistling noise.

In the earliest stages of pleuro-pneumonia the deposit of lymph on the serous covering of the ribs and lungs produces a leathery friction sound, and as liquid accumulates in one or both cavities of the chest the respiratory murmur is lost towards the lower part of the affected side or sides, and it is alone distinct over the upper portions of pervious lung tissue.

A careful examination of the chest reveals day by day the progress of the disease. When one lung is affected an animal is much more likely to recover than when both are diseased. Portions of the diseased lung tissue are apt to die, and becoming detached or softened, producing cavities on the lungs, which are indicated by a cavernous râle or sound somewhat similar to that produced by blowing air in the hollow of the hands when closed against each other.

By careful auscultation the cases that tend to convalescence may be distinguished by less marked roughness in the inspirations, and a gradual though slow return of the respiratory murmur, with increased mobility of the ribs and easier movement of the flanks.

Termination.—Cases of lung diseases in cattle end in partial or complete restoration to health or death by prostration, suffocation, purulent fever, or hectic.

As a rule, when a herd of cattle has suffered from the contagious pleuro-pneumonia, the surviving animals whenever slaughtered show old adhesions, partial collapse of the lung tissue, atrophy or wasting of the lung, thickness of the heart's covering or pericardium, and sometimes chronic abscess. Complete recovery without leaving the slightest traces of pre-existing lesion occurs. It has been noticed that cattle that have once had pleuro-pneumonia fatten more readily than others.

Death supervenes during the acute attacks of the disease from shock, prostration, or gradual suffocation. When animals linger on for some time in the bloodless state peculiar to this disease, and which is mainly due to the great drain on the system by the immense discharge which occurs in the substance of the lung and cavities of the chest, a permanent impairment of the functions of nutrition or assimilation occurs, and although the appetite may be partially restored, emaciation advances, and the animal sinks. A terrible diarrhœa or dysentery usually accompanies this form of disease.

In other cases abscesses form in and around the lungs and in other parts of the body, and the animals die of purulent infection. Occasionally a cavity formed by the breaking up of diseased lung tissue communicates with the pleural sac or cavity of the chest, and a condition known to pathologists as empyema results to the certain destruction of the animal.

Duration of the disease.—Affected animals usually pass through an incubative stage varying from 20 to 80 days, and usually averaging from 25 to 40 days. The acute stage of the disorder varies from 7 to 21 days. Convalescence extends over a period of one, two, and even three months, during the greater part of which the convalescent animal is often capable of infecting healthy cattle.

The mortality varies from 1 to 90 per cent. of the affected animals. When a first case is isolated early all the remaining animals may continue to enjoy health. As a rule in mild outbreaks the mortality obtains 25 per cent., and in severe cases 60, 70, 80, and even 100 per cent.

In England the lung disease has doubled the usual cattle mortality of the country, and during many years 50 per cent. of the cattle that have died of disease have died of the contagious lung disease.

Latent form.—It is necessary that I should draw special attention to the large number of cases which run an insidious course and pass unobserved. These are the most dangerous, as less care is paid to their isolation.

Relapsing form.—An animal affected with contagious pleuro-pneumonia may to all appearances recover, the affected lung becomes limited by a capsule of solid lymph, and convalescence may apparently advance for some days, or even

weeks. Suddenly, however, a fresh deposit occurs, either in extension of the original seat of the disease or in another part of the lungs, and under these circumstances a fatal termination is the usual result.

V. APPEARANCES AFTER DEATH.

Animals that are slaughtered or are permitted to die in advanced stages of the lung plague present the following characteristics:

The internal changes are confined almost entirely to the chest. On opening this, by splitting the brisket, as the animal lies on its back, layers of yellowish, friable, false membrane, of varying tenacity, stretch across around the sac (pericardium) containing the heart. These adhesions exist on one or both sides of the chest, and are sometimes altogether absent. They are found bathed in a yellowish, grumous fluid or serum, highly charged with albumen and shreds of solid deposit. Portions of one or both lungs are found more or less firmly adhering to the membrane (pleura) covering the ribs and diaphragm, and in passing the hands, especially round the large posterior lobes of either lung, it is difficult, in advanced stages of the disorder, to detach the diseased portions of the organ from the ribs.

The false membranes, disposed in layers which may be stripped off the pulmonary surface, are found adhering more or less closely to it, and the membrane (pleura) covering the lung, which is usually smooth and glistening, is rough, of a mottled color, and with more or less marked papillary or warty-looking eminences. These are the vascular offshoots of the membrane feeding the deposit around, and in time the process of growth and formation of vascular or blood-carrying tissue may lead to as solid a connection between the lung and the sides of the chest as between healthy tissues. Such complete development is only seen in very chronic cases or animals that have recovered from the disease.

The fluid around one or both lungs varies in amount from a few ounces to several gallons. At times it is tolerably clear when warm, and gelatinizes on cooling. At others it is difficult to separate it from the shreds of lymph and false membranes in the meshes of which it is held. Pus cells frequently abound in it, and it assumes in a few cases the character of pus. It is especially purulent when abscesses have formed in the gangrenous lung tissue, and an opening has led to communication between the lung tissue and the pleural sac. Under these circumstances the fœtor noticed on opening the chest is intolerable.

On removing the lungs, great variations in extent but uniformity in essential appearances of disease exist.

In recent and mild cases one lung is found affected. Its surface may be smooth from the absence of deposit around it. Parts of the organ are collapsed, as in health, and the usual normal pink color is noticed. The affected part is swollen, hard, and mottled. On cutting into this, the older diseased portions present a very peculiar marbled or tesselated character. The substance of the lobules is solid and of a dark red color, and the tissue between the lobules is of a yellowish red, more or less spotted with red points, but sometimes of almost pure yellowish white color.

The more recent deposits are distinguished mainly by a lighter red color of the thickened lobules, and there are gradations from this condition to that in which the lobules are but slightly infiltrated with semi-liquid serum, and air still passes more or less into their air vesicles.

As the disease advances the extent of solidified and darkened lung increases, and portions of the lung tissue lose more or less the marbled appearance, from the blood-staining of the interstitial deposit. The consolidation of structures advances so that the blood vessels are obstructed, the diseased lung loses all means of nourishment, and the older, darker, and more solid portions become detached, so that they remain as foreign bodies imbedded in cavities in the

diseased tissue. The admissions of air through the air passages into these cavities by dissolution of the lung tissue lead to the cavernous sounds which the ear can detect in the living animal, and the broken-up tissue decomposes and induces great fœtor of the breath.

One lung may have several points diseased; each lobe may be affected and little or no communication between the several parts implicated. The great tenacity of a yellowish white deposit around a marked marbled centre of disease has been said to indicate a certain tendency to limitation by the formation of a capsule, and several encapsulated centres may be found.

On taking a warm diseased lung, severing the still healthy portions, making incisions into the parts solidified, and suspending them so that they may drain, a large amount of yellowish serum of a translucent character, almost wholly free or more or less tinged with blood, is obtained to the extent of pounds in weight. The amount varies with weight of diseased lung drained. The quantity of this and solidified deposit in a diseased lung is so large that from a normal weight of four or five pounds, a lung attains to 10, 20, 40, and I have seen one as high as 54 pounds in weight.

Air passages.—The condition of the air passages varies from a condition of perfect freedom down to the diseased portions of lung, to a state in which the mucous membrane is coated with false membrane or solid exudations of lymph. By suitable means it is not difficult to isolate the solid white lymph clogging the terminal bronchial tubes and air vesicles in the consolidated tissues, but at a distance from these parts it is only in some cases that a kind of croupy complication exists. I have seen an animal gasping for breath, with its mouth open, nostrils widely expanded, eyes prominent, and visible mucous membranes of a bluish red color; on opening the air passages of this cow after death, they were found throughout their whole extent nearly filled with a deposit similar to that usually found on the surface of the diseased lung.

There is little necessity for prolonging this description of cadaveric manifestations. The heart's sac is sometimes thickened by deposits around it. Not unfrequently it contains an excess of serum. The heart itself is contracted and pale, containing a little dark blood. The organs of digestion at different stages manifest a state of dryness. The third stomach, which is so constantly packed with dry food in febrile diseases, is in the same condition in pleuro-pneumonia. I have known the mucous layers spotted with irregular or circular congestions or blood extravasations, and the membrane softening in these parts has become perforated. In advanced cases there is more or less diffuse redness, and even blood extravasations in the large intestine with fluid, fetid and sometimes slightly blood-stained excrement, such as is discharged during life.

The anæmia or bloodless condition of other tissues, the dark dry look of the meat dressed by the butcher, the yellow color of the fat in some cases, and the small quantity of fat left in animals that have succumbed under a chronic attack, are all general signs of greater or less value, when taken in conjunction with the changes occurring in the chest.

VI. HISTORY OF THE LUNG PLAGUE.

It is only necessary for the present purpose to refer briefly to the history of contagious pleuro-pneumonia in order to show where and how this disease has traveled in the Old World; its importation into America, and the alarming character of its present existence at remote parts of this continent.

History abroad.—The contagious pleuro-pneumonia of cattle is a disease doubtless of the greatest antiquity. All reliable records point to the simple truth that has to be told of many contagious disorders, that it has travelled from the east westwards. Older writers confound it with rinderpest, and a host of other maladies. It was only towards the end of the last century that the

universal prevalence of the lung plague, wherever cattle were being driven to provide the many armies then stirring, led to its distinct and satisfactory descriptions. Early in the present century it ravaged France, Belgium, Hanover, and Holland. England, isolated by the ocean, and the extreme north of Europe, alone remained free.

With peace came the development of new industries, and the most important in relation to the history of pleuro-pneumonia was the establishment in Germany, Belgium, and Holland of distilleries, starch and sugar manufactories, &c., the refuse of which it was found profitable to feed to stock. This led to great activity and important modifications in the cattle trade, all favorable to intercourse between different countries and the dissemination of contagious disease.

Holland had long imported fat and milch stock from the Rhine provinces and other countries to the east. The malady was for six years in Belgium before it entered Holland. In 1835 it was transmitted from Gelderland to Utrecht. It reached South Holland immediately afterwards, and prevailed especially near the great cattle markets of Rotterdam and Scheidam. It then appeared whenever and wherever infected cattle were introduced into South Holland, the island of Zeeland, Drenthe, Groningen, and Overyssel.

By this time—1840–'41 and 1842—circumstances favored an agitation for the repeal of restrictions on free trade in cattle with England. The barriers to contagious disease fixed by our forefathers after the appearance of rinderpest in England were at last removed by Sir Robert Peel, and this caused the cattle traffic to grow apace from Central Europe through Holland to England. The great cattle-feeding province of the Netherlands, Friesland, was alone infected with the lung disease when its people eagerly sought to supply British wants, and from that day to this has been constantly the seat of the malady.

Dutch stock first introduced the lung plague into the south of Ireland. It appeared in 1842, in London. In 1843 English cattle communicated the disease to Scotland, and ever since, with the exception of a period of cattle trade restrictions enforced for the prevention of the Russian murrain, has been the most widespread, as it has been, taking the entire period of its ravages into consideration, the most destructive of all maladies attacking British cattle.

From Holland the disease travelled to the Cape of Good Hope, and from England at various periods it was communicated to Sweden, Oldenburgh, the Australian colonies, and other parts of the world.

History of the Lung Plague in America.—The first notice of the lung plague in the United States dates back to 1843, when a German cow, imported direct from Europe, and taken from shipboard into a Brooklyn cattle shed, communicated the disease, which, it is said and believed, has prevailed more or less in Kings county, Long Island, ever since.

In 1847 Mr. Thomas Richardson, of New Jersey, imported some English stock. Signs of disease were noticed soon, and the whole of Mr. Richardson's stock, valued at $10,000, were slaughtered by him to prevent an extension of the plague.

In 1850 a fresh supply of the lung-plague poison reached Brooklyn from England in the system of an imported cow.

Mr. W. W. Chenery, of Belmont, Massachusetts, has related the history of the introduction of lung plague from Holland into Massachusetts in 1859. Four cows were purchased for him at Purmerend and Beemster, shipped at Rotterdam early in April on board the barque J. C. Humphreys, which arrived in America on the 23d of May, 1859. Two of the cows were driven to Belmont; the other two had to be transported on wagons, owing to their "extremely bad condition," one of them "not having been on her feet during the twenty days preceding her arrival." On the 31st of May, it being deemed impossible that this cow could recover, she was slaughtered, and on the 2d of June following the second cow died. The third cow sickened on the 20th of June, and died in 10

days. The fourth continued in a thriving condition. A Dutch cow, imported in 1852, was the next one observed ill, early in the month of August following, and she succumbed on the 20th. "Several other animals were taken sick in rapid succession, and then it was that the idea was first advanced that the disease was identical with that known in Europe as epizootic pleuro-pneumonia." Mr. Chenery then did all in his power to prevent the spread of disease from his farm. The last case at the Highland farm, Belmont, occurred on the 8th of January, 1860.

In June, 1859, Curtis Stoddard, of North Brookfield, bought three young cattle, one bull and two heifers, from Mr. Chenery. One calf showed signs of sickness on the way home. Leonard Stoddard, father of Curtis, thinking he could better treat this sick calf, took it to his own barn, where he had 48 head, exclusive of calves, and with which the calf mingled. One animal after another was attacked, till the 12th of April, when 13 head had died, and most of the remainder were sick. The disease continued to spread from farm to farm as rapidly as circumstances favored the admixture of stock. The period of incubation in well defined cases varied from 19 to 36 days, and averaged 26⅔ days.

The people of Massachusetts, a little slow at first, overcame the delays incident to legislation, established a commission for the purpose of exterminating the disease, and an appropriation of $10,000 was placed under the control of the commissioners on the 4th of April, 1860. The disease was gaining ground rapidly, and a bill to extirpate the disease passed its several stages and was approved on the same day. Commissioners were appointed; herds were examined by surgeons, and, if infected, slaughtered; the animals pronounced healthy at the time of inspection alone paid for; all the money appropriated was spent, and such was the feeling then in Massachusetts that private gentlemen made themselves responsible for a second amount of nearly $20,000. An extra session of the legislature met on the 13th of May. Fresh powers were sought and obtained, additional commissioners appointed, and the disease apparently exterminated. It reappeared in 1861, a new board of commissioners was appointed, and further successful efforts made to prevent the disease. On the 24th of December, 1863, Mr. Charles L. Flint, in a letter to Governor Andrew, asserted that pleuro-pneumonia still existed in 12 or 15 towns of the commonwealth of Massachusetts. Mr. E. T. Thayer, to whom the people of Massachusetts owe much for his skill and industry as the veterinary commissioner, and Mr. Charles P. Preston, wrote their final report to the Senate and House of Representatives of Massachusetts on the 30th of December, 1867. In that report, and tendering their resignations to the governor, they congratulate the people on the success which had been insured by efficient co-operation "in eradicating one of the worst forms of contagious disease which has been found among cattle."

From numerous inquiries there is not the slightest doubt in my mind that the lung disease continued, ever since its first introduction, to attack some of the numerous dairies on Long Island. One of the best informed dairymen in Brooklyn informed me that, three months after starting in business, 16 years ago, he lost 11 out of 12 cows he had purchased in Newark, New Jersey. He bought more and began to inoculate with excellent results. Other people were losing, and he established himself on Jamaica Pond to be clear of every one. When he stopped inoculating the disease reappeared. Mr. Benjamin Babbit, of Lafayette avenue, was the first to inoculate after the introduction of this practice in Europe, and many dairymen adopted it. The board of health opposed the practice, as many of the cows lost portions of the tail, and reports were made of blood and matter finding their way into the milk-pail. The disease has never ceased, and I have visited many dairies, in all of which at one time or another and in most of which during the present year, the disease has prevailed. In five dairies I examined, within 100 yards of each other, I found

one or two sick cows in each. The Hartford Insurance Company, which has recently suspended operations, lost heavily on the insurance of cows from the prevalence of this disease, and that company objected also to the practice of inoculation.

From Mr. Bedell's statement, there is no doubt of the existence of the contagious pleuro-pneumonia in New Jersey when he first bought his cattle. Mr. Robert Jennings, veterinary surgeon, had his attention drawn to the disease on its appearance in Camden and Gloucester counties, New Jersey, in the year 1859. In 1860 it crossed the Delaware river into Philadelphia, spreading very rapidly in all directions, particularly in the southern section of the country known as "The Neck"—many of the dairymen losing from one-third to one-half of their herds. The sale of sick cattle continued, as it always does, unless prevented by rigid laws. In 1861 the malady appeared in Delaware, and in Burlington county, New Jersey, and the disease could be distinctly traced to the Philadelphia market.

The records of outbreaks are by no means satisfactory, but a gentleman well known in Maryland, Mr. Martin Goldsborough, informs me that the malady has been very destructive on many farms of that State for the past three years. Individuals have lost their entire herds, in some cases numbering 24, 30, and as high as 47 head. Last year an effort was made to direct the attention of the legislature in Maryland with a view to the adoption of successful measures, but without effect. Mr. Goldsborough's statement is to the effect that the disease in Maryland is due to the purchase of cattle in the Philadelphia market.

There is no doubt of the great prevalence of the malady for some years in Philadelphia. I have seen it on two farms in Delaware county, and it has been on several others recently. Bucks county has suffered much for two years. A correspondent informs me that in March, 1867, a drove of cows was taken into that county, and one of them was observed sick. These animals were distributed among the farmers and soon the plague appeared in all directions. An effort was made then to secure the aid of the State legislature, without effect, and to this day the disease is in Bucks county. The last case I have to report is at Newtown, Bucks county, where the disease was introduced by cows bought in the Philadelphia market.

That the malady has attained such proportions as to demand constant attention, apart from the fact that but one case on the whole continent is a source of incalculable danger, is proved by a circular recently issued by gentlemen in Westchester, Pennsylvania, and which is of sufficient importance to be reproduced here:

PLEURO-PNEUMONIA.—The great increase in the disease known as pleuro-pneumonia among cattle within a few years past, its highly contagious character and the acknowledged inability of the most skilful veterinary surgeons to control or in the least mitigate its severity in certain stages of the disease, calls for immediate and earnest attention from the community. It is a well known fact that the cupidity of many induce them as soon as the disease develops itself on their premises to hurry off their stock (diseased as well as those not diseased) to the nearest drove yard, to be there sold for whatever they will bring; to be either sold as food or driven off to new sections and there to infect and poison other animals with which they may come in contact.

With the view of arresting this increasing and wide-spreading evil, the undersigned, a committee of the "Mutual Live Stock Insurance Company of Chester County," an institution established purely for mutual assistance and protection, respectfully invite your co-operation in procuring such action at the hands of our next legislature, by the passage of a law authorizing the appointment of a suitable number of qualified and conscientious inspectors throughout the State, whose duty it shall be to examine thoroughly all animals, especially those offered for sale, wherever they may be; and subjecting those offering such diseased animals to both fine and imprisonment, and to take such other measures as may be deemed necessary to effect the entire extirpation of the disease from our midst.

I can corroborate the statements made as to the sale of cattle that are infected. Not only has this occurred often where the disease has been most rife for years past, as on Long Island, but recently, in making inquiries in Delaware county,

Pennsylvania, I learned of three cows which had been sold "healthy" (?) out of an infected herd. Such a practice explains the progress of the disease even further south than Maryland.

I recently visited the dairies of Kendall's Green and Georgetown, near Washington, and found that last year the cattle had been nearly entirely exterminated by the disease—so much so that to the present day the poor people who keep one or two cows are afraid to buy and in constant fear lest the malady should return.

Three years since the lung plague appeared in Alexandria county, Virginia. It has been steadily on the increase ever since, and continues to the present day.

I have been informed that the malady has travelled as far west as Kentucky and Ohio, but of this I have not been enabled in the brief time since I commenced the inquiry to obtain satisfactory evidence. I have taken some pains to ascertain if the disease had reappeared in Massachusetts, and personal inquiries in various parts of the State show that it is quite free from the disease, thanks to the energy of its people and the enlightened action of its legislature.

The conclusions that are warranted by the facts I have gleaned are as follows:

First. That the lung plague in cattle exists in Long island, where it has prevailed for many years; that it is not uncommon in New Jersey; has at various times appeared in New York State; continues to be very prevalent in several counties, especially Delaware and Bucks counties, Pennsylvania; has injured the farmers of Maryland, the dairymen around Washington, and has penetrated into Virginia.

Second. That the disease travels wherever sick cattle have a chance of being introduced, and that the great cattle-rearing States of the west, which may not at present be entirely free from the disease, have been protected by the fact that they sell rather than buy and import horned stock.

Third. There are no proper restrictions on the sale of infected stock, and in another year or two, unless some definite and immediate action be taken, the disease is likely to find its way in so many parts of the country that its eradication will be almost a matter of impossibilty.

Of all the cattle diseases pleuro-pneumonia is in the long run the most destructive, because the most insidious and the least likely to rouse a people to united action for its effectual suppression. To ignore its presence is, however, to insure that the cattle mortality of America, like that of England, will be at least doubled in a few years' time. Rational means, energetic action, and earnest co-operation between the different States and the central government may, with a moderate expenditure now, save many millions annually in the not distant future.

VII. WHAT ARE THE RATIONAL MEANS THAT SHOULD BE ADOPTED?

First. Reliable and complete data should be obtained from all parts where the disease is known or supposed to exist.

Second. The several States directly interested should take action in accordance with the example set them by Massachusetts.

Third. If possible, Congress should pass such laws and institute such inquiries as may tend to the discovery and prevention of the disease wherever State authorities cannot or will not cope with it.

From the inquiries instituted by me in Long Island, New Jersey, Pennsylvania, Maryland, and Virginia, I am convinced that a great deal can be accomplished by diffusing information and stimulating farmers to pay attention to the subject. Unfortunately all will not act for the interest of their neighbors and their country, and it is therefore essential to exercise some coercion for the universal good.

In Massachusetts, as in England, there was at first some objection to the

slaughter of entire herds. In relation to the lung plague this slaughter is unnecessary if competent authorities are appointed to superintend the slaughter, or complete isolation of absolutely sick cattle and the inoculation of the remainder.

I was once opposed to the practice of inoculation, but the experience of several years, especially since the meeting of the first International Veterinary Congress, in 1863, has convinced me that the practice is most beneficial.

Space forbids my entering into many details on this occasion, but it may be accepted as proved that whereas it would be inadvisable to introduce a wholesale system of inoculation among healthy herds, it is wise, economical, and adequate to the prevention of the disease to introduce the practice in all stables and on all farms where the lung plague appears. It fails only when the cattle have all become simultaneously infected and no time is allowed for the inoculation to take effect.

The isolation of infected herds, whether inoculated or not, should last for at least two months after the last case of sickness.

The method of practicing inoculation is extremely simple. A portion of a diseased lung, if possible in the early stage of the disease, is taken warm and sliced so as to drain the lymph into a convenient vessel. A small syringe with a sharp-pointed steel tube is filled, and a drop or two of the lymph is injected into the skin of the tail, which is punctured about an inch from the end. The rude old plan of inserting a piece of lung into an incision at the top of the tail succeeds, but is more likely to prove ineffectual or dangerous than the simple and ready method I have described.

It may be desirable to collect the lymph and prepare it for distribution. This can be done, in my opinion, by evaporating the liquid from the lungs in shallow porcelain vessels at a low temperature and with the aid of the air-pump.

CEREALS FOR ANALYSIS.

The Department having resolved upon making a series of chemical analyses having for its object the determination of the chemical values of cereals (wheat, corn, oats, and rye) grown in this country under the varying conditions of latitude, altitude, and general climate, has issued to the various State societies of agriculture the subjoined circular, in the hope that a more extensive collection may be obtained in that way. Replies and samples are being received from some sections of the country, and the circular is here inserted in order to give it more publicity, so that the Department may obtain specimens of cereals of fair average from every State in the Union:

DEPARTMENT OF AGRICULTURE,
Washington, December 20, 1868.

SIR: In view of the great extent of our agricultural territory and its consequent variety of soil and climate, and of the fact that the United States has become one of the greatest grain producers for European and other markets, it appears necessary that an extended examination of the breadstuffs grown in the several regions of our country noted for producing corn and grain of prime quality should be made, in order to determine accurately the chemical composition and food value of American crops. The chemical examinations of food materials grown in the United States hitherto made have been of a few samples and from a limited area of growth.

It is now desirable to ascertain what differences climate, elevation, latitude, and meteorological conditions have in determining the food value of certain cereals, and the relative variations of nutritious principles contained, as produced

by such modifying influences. The information thus obtained must have a most beneficial effect upon our future cultivation.

To arrive at truthful results several hundred analyses should be made; and to further the object of the Department, and carry out this undertaking successfully, I have to solicit your assistance in obtaining and forwarding, during the coming autumn, samples of corn and grain grown in your State, (or county,) which you will please select and forward in accordance with the suggestions appended.

I am, respectfully,

HORACE CAPRON, *Commissioner.*

———— ————,

Sec. ———— *State Agricultural Society.*

SUGGESTIONS.

1. Corn and grain, (wheat, oats, rye,) the growth of this year.
2. Samples of average character only desired, except in cases where the prize specimens represent a large cultivation, when the latter are preferred.
3. Not over two pounds weight of each sample will be needed; which may be enclosed in cotton or linen bags, and well protected on the outside from moisture. Such samples will come free of postage if addressed to "Department of Agriculture, Washington, D. C."
4. Any particulars in reference to growth, as location of land, physical peculiarities, quality and quantity of manures, sowing and harvesting.

POTATOES—YIELD OF VARIETIES.

The following table exhibits the yield of the several varieties of potatoes named, grown upon the grounds of the Department the past season:

Varieties.	No. of pounds planted.	Yield in pounds.	Percentage in pounds.
Blue kidney	21	187	9 pounds for 1 pound, 3⅜ bushels.
Scotch blue	23	637	27⅞ pounds for 1 pound, 11 bushels 1½ pecks.
Rock	24	776	32⅜ pounds for 1 pound, 13¾ bushels.
Napoleon	23	539	23½ pounds for 1 pound, 9 7/10 bushels.
Early Goodrich	14	226	16⅛ pounds for 1 pound, 4 bushels 2 pounds.
Harrison	15	493	32 1/15 pounds for 1 pound, 8¾ bushels.
Regent	20	602	30 1/10 pounds for 1 pound, 10¾ bushels.
Victoria	22¾	365	16 2/13 pounds for 1 pound, 6½ bushels.
Blue	13	327	25 2/13 pounds for 1 pound, 5⅝ bushels.
Early red kidney	8	21	2⅝ pounds for 1 pound, 1½ pecks.
Early	15	585	39 pounds for 1 pound, 10 5/7 bushels.
Albert	20	943	47 3/10 pounds for 1 pound, 18 7/7 bushels.
Economist	22	956	43 1/2 pounds for 1 pound, 18⅚ bushels.
Red	22	494	22 1/2 pounds for 1 pound, 8 9/7 bushels.
Total amount	262¾	7,151	Average, 27.23 pounds for 1 pound.

The Early Red Kidneys were affected with the rot when planted, and the yield was therefore very light.

CONDITION AND PROSPECTS OF SOUTHERN AGRICULTURE.

From the many interesting letters received in response to a circular sent out by this Department for the purpose of collecting information in reference to the condition and progress of southern agriculture, we select the following comprehensive paper from John A. Trenchard, esq., of Elberton, Georgia, for insertion in the monthly report:

1. For an average of 10 years, say from 1850 to 1860, there was about one-third of the acreage cultivated in what is called in this State clean crop, to wit: cotton, and corn planted in cotton; the balance, or the other two-thirds, was planted in corn. Add to the above 33⅓ per cent for the land planted in small grain, (principally wheat and oats,) and you will have about the average percentage of the principal crops grown in this section of the State.

2. The mode of culture was the same as that now practiced, to wit: the land is first bedded up; this is done by laying off the rows with a small scooter plough about three feet apart; then a turning-plough is used to throw up the soil on each side of the row furrow, making a high bed of soil over the row furrow and leaving a deep water furrow in between the rows; the top of this bed is then opened with small scooter plough two to three inches deep; the cotton seed is then sown in this drill furrow at the rate of three to five bushels per acre; a small harrow, or, what is more usual, a piece of board about twelve inches long, fastened to the foot of a small wooden plough stock, is then run over this drill furrow, covering the seed from one to one and a half inch deep. In a period varying from five to ten days, owing to the temperature of the weather, the young plant makes its appearance; as soon as fairly up the working commences. Some chop through the rows with a hoe before ploughing; cutting out a portion of the young plants and stirring the earth about the roots of the remaining ones, so that the rays of the warm sun may penetrate and permeate among the roots, for cotton is a sun plant; the more sun the young plant gets the more rapidly it grows; but more usually the cotton row is sided with a very narrow scooter plough, so arranged as to throw the soil from the roots of the plant, for the same purpose as above stated in manipulations with the hoe, namely, that of giving the young plant the benefit of the sun. After this siding of the cotton, the hoe is run through it, thinning it partially to a stand, leaving enough in the rows to make a stand after the plants quit dying, which is not generally the case till the second working, after it is thinned down to a stand of two or three plants in a hill, six inches to one foot apart. After first siding and hoeing the cotton as before stated, the middle of the rows are ploughed out with a wide shovel or a sweep, which latter implement only cultivates the surface of the earth from one to one and a half inch deep. The crop is then ploughed and hoed alternately three or four times, keeping up the working till the middle or last of July. The surface culture for cotton is the most approved mode by our best and most scientific farmers.

3. The product of genuine cotton per acre varies according to the quality of the land cultivated. Unmanured lands produce from 50 to 400 pounds of ginned cotton per acre; the general average for this State is about 100 pounds per acre, and the average per hand is about 1,200 pounds ginned cotton, or three bales per hand. Some of our best planters have by the free use of fertilizers and by skilful modes of culture grown on one acre 1,200 pounds of ginned cotton. Mr. David Dickson, of Hancock county, Georgia, who has carried experimental farming to a higher degree than perhaps any other man in the State, has even exceeded the foregoing amount per acre on a small lot highly cultivated; but these are only exceptional cases; still they show what can be done by high fertilizing and improved and skilful modes of culture.

4. The profit per hand during the ten years preceding 1860 varied from $50 to $300, but since 1865 the farmers have generally sunk money by their farming operations; owing partly to the inefficiency of the recently freed labor, together with the long drought of 1866 and the excessive rains of 1867.

5. The price paid for the labor of men in 1860 was $125 per annum, with food and clothes furnished by employer; for that of women, $80; for that of youths, $50. The price sof same classes in 1867 were, for men, $100, with fuel, but no clothes furnished—that is, the laborer furnishing his own clothing; women, $60; youths, $30. For the present year, same classes, men, $60 to $70; women, $40 to $50; youths, $20 to $30. A large portion of the hands this year have contracted for a part of the crop. Some get one-half of the net profits after deducting all expenses, some one-third, gross products, the laborer feeding himself and the employer bearing all other expenses; others get one-fourth of the gross products, the employer feeding the laborer and paying all the expenses of the farm.

6. There has been no material change in the mode of culture since 1860. The size of plantations has been considerably diminished in the last two years. Planters find that they must only cultivate their best lands with freed labor; and that, too, at a decreased ratio of profits.

7. As before stated, Mr. David Dickson is the most scientific and also the most successful planter in this State; he uses No. 1 Peruvian guano, dissolved bones, salt and gypsum, 100 pounds of each per acre, manipulated or mixed together, which, according to his published statements, pays him one hundred per cent. on his investment. Mr. James Davison, of Greene county, Georgia, experimented quite extensively last year with stable manure, and several of the commercial fertilizers. The experiments with Peruvian guano increased the yield 140 per cent. when compared with the yield from same kind or quantity of land without fertilizers; some other of his fertilizers increased the yield to over 200 per cent.; this was done with common wood-ashes and salt.

8. The cost of the production of cotton in 1867 was about 15 cents per pound; and as most of our planters sold their crops for less than that figure, cotton-planting was a losing business last season.

9. But very few colored men have planted much cotton entirely free from the control of white men, so far as my knowledge extends; but the few instances show that they have succeeded about as well as the whites.

10. The principal circumstance that affects the comparative profits of large and small plantations is, the labor not being well trained under the new system, renders it necessary for the planter to give close personal attention to all the minutiæ of his planting operations; and this he cannot well do with more than 10 or 12 hands.

11. There is little or no improvement in the use of farming implements in this State.

12. There is no crop cultivated in this State that will pay as well as cotton.

13. There is not sufficient attention paid to the improvement of the breeds and raising of stock in our State. First, stock can be raised with very little expense; the winters being short, but little gathered food is needed to winter stock. In some sections of the State, stock winter well on the cane-brakes, and on the native grasses that flourish during the winter seasons without any gathered food at all. Second, by increasing the number of stock on a farm, you greatly augment your means of enriching your lands by manuring. Third, the beef and mutton from your flocks being an excellent substitute for bacon, should be another incentive for raising more and better stock.

14. Our State is gradually sinking lower and lower in poverty and general demoralization under the new state of things with which we find ourselves surrounded. A confusion almost equal to the confusion of tongues at the Tower of Babel compasses us about, and threatens to overwhelm us in general ruin,

and in all this sad state of things the laborer is not so much at fault as the employer. Almost the entire mode of culture must be changed under our new status. Before the downward career of our prosperity can be arrested, the white population must become inured to habits of industry; they must learn how to manage free labor by offering the rewards of good wages to the faithful laborer, and must get rid of the old idea that the whip is the only real incentive, and must learn to bring out free, voluntary and spontaneous labor by those nobler and sublimer incentives that will make it pleasing in the eyes of the laborer, and which a just Providence can bless; then, and not till then, will this once great Empire State of the south begin to emerge from her sinking condition; to develop her mighty resources, and again become not only the Empire State of the south, but the Empire State of the Union.

THE SCUPPERNONG GRAPE.

The following letter has been received from Louis Froelich:

Kenansville, N. C., November 1, 1868.—It gives me pleasure to send, in accordance with your request, my 10 years' experience in the culture of the Scuppernong grape. I will first give the several points, from one to six, and then present a general view of the subject.

1. The vines should be planted 45 feet apart, or 21 vines to the acre.

2. The vines should be planted in December or January.

3. We have the White and Black Scuppernong, and the Flower, the Mish, and the Bullace.

4. One hand is required for each 10 acres under cultivation, and in the gathering season one hand to the acre.

5. The yield this year has been equal, in quantity and quality, to the crops of the preceding 10 years. This variety is the only grape entirely free from disease, and the vines are not troubled by insects. They sprout very late in the spring, and are, therefore, never injured by frost, and their hardy wood, and the thick, leathery skin of the grape exempt them from injury from hail-storms, &c., rendering the Scuppernong the surest crop of grapes I have ever found or heard of in any wine-growing country. At my old home on the Rhine we had in each five years two entire failures, two seasons of inferior wine, and only one perfect crop; and I found nearly the same results in Austria, Hungary, France, and Italy, and in the northern or western part of the United States. Indeed, we have not in this country a single variety, except the Scuppernong, which is not liable to injury from frost, or in danger of not ripening through unfavorable seasons or the various grape diseases. With this variety, however, we may calculate with certainty each year, in both quantity and quality, and with the fifth part of the labor and expense attending the cultivation of other varieties, the average yield for a three year old vine is one peck; five years old, two bushels; full grown, ten year vine, 25 bushels.

6. Expenses per acre the first year are as follows: 21 plants, of good size and well rooted, $5; planting and staking, $10. Third year, 84 arbor posts, and 21 dozen fence rails, $15. Fifth year, 336 posts and 1,000 rails, $60. Tenth year, 500 posts and 1,500 rails, about $100. From the fifth year it takes one hand for cultivation and the extension of arbors, and from the first to fifth year about two years labor of one hand is requisite. After the tenth year it costs very little to manure the vines every two years, and gathering expenses and repairs of arbors may reach $10 per year. When 15 years old, and kept in the highest cultivation, the vine will yield 35 to 40 bushels of grapes. We have a good many single vines that bear 50 to 75 bushels. A full ripe bushel

of Scuppernong grapes weighs 60 pounds, and will yield 4 to 4½ gallons of juice, after which the pommace will make five gallons of vinegar. To the four gallons of juice add four pounds of crushed sugar, and at the end of six months you will have 3½ gallons of good marketable wine, worth on an average $2 50 per gallon. The five gallons of vinegar will yield at the end of three months 4½ gallons of first quality vinegar, worth 50 cents per gallon, thus realizing from one bushel of grapes $11; from one vine, in full bearing, $275; and from one acre of 21 vines, $5,775. The expenses attending the production of this wine foot up nearly $800, and for the vinegar $125, leaving a profit of about $4,850 on the product of the acre of vineyard.

The Scuppernong is the most profitable grape in the world, but is known only in the south, especially in the Carolinas, as the summer seasons of the north are not long enough for its successful cultivation. In the Carolinas it grows on the poorest sand hills, on the lowest swamp lands, and on stiff, clay, gravel land, the last named being the best for it. This grape has grown wild, without care or effort to improve it, but last year I gave this subject special attention, and found the vines highly susceptible to improved cultivation.

The vine must be planted well rooted. Dig a hole four feet square and two feet deep. Throw the first foot of earth on one side, and the second foot on the other side. Throw the first foot of earth back into the hole, then fill up to within six inches of the top with good compost, and then spread the roots of the vine out carefully, and fill the hole with the same compost, about three inches above the surface, trampling it level with the surface with the feet. Fasten the vine to a pole about three inches thick, and eight feet above ground, put in when the vine is planted. During the first and second years, when the vine is sprouting, all side limbs should be pinched off smooth, the main stem only being allowed to grow up. Keep the main stem well fastened and straight, and raise it about a foot higher than the pole, and then allow the sprouts to spread out in all directions on a 12 feet square arbor. I used last year, instead of slats or rails on the arbors, telegraph wire, spread over like a sifter, about two feet square, with surprising results. The vines grew twice as much as those of the same age on wooden arbors, and the grapes ripened more equally, and one-third more in quantity. The wire arbor costs little more and will stand 30 years when galvanized. The sun and air strikes better through the wire, and the vine will grow much faster than when on the slats or rails, the little ringlets which sprout out from the vines winding around a small thing more readily, and thus keep the vine steady and assist growth.

The third year the vines must be manured and every three years thereafter. For this purpose dig a ditch around the vine (so far as the little roots reach) one foot wide and one foot deep. Fill the ditch half full of compost and then fill up with top soil. The manuring should be done in December or January, as summer manuring makes the vine rusty, and causes the fruit to drop off before ripening. Raw stable manure should not be used, but should first be composted, mixed with any soil. The cheapest and best is swamp muck, and if you wish to make it as rich as guano, mix with it bone-dust, ashes, and lime, and about 10 per cent. of stiff soil.

Unlike all other grape vines the Scuppernong does not need to be pruned back. After the grapes are gathered take out all the dead limbs, and cut off all ringlets, for they are destructive enemies of the vine when wound around the limbs, preventing full growth, and sometimes killing the limbs. The outside end limbs, of last year's growth, should be straightened and spread out on the arbor in all directions and fastened. This is an important work, as without it the vine will grow wild and tangled, and the limbs be prevented from spreading, in consequence of which some of the fruit will never be reached by the sun or air, the sugar in the grape will not get a chance to concentrate, and the grapes will fall off before maturing.

Grapes should be gathered at three different times by the following plan: Make a wooden frame about ten feet square, placed on two axles with four small wheels; cover the frame with a strong cloth, made a little deeper in the middle; roll this frame under the vine you wish to shake; then shake the vine gently with a smooth iron hook fastened on the end of a stick, when only the perfectly ripe grapes will fall. The unripe grapes must be picked out for vinegar, and the leaves and trash should also be taken out. In this way two hands may pick 100 bushels a day. From the first gathering you will get about one-third of the crop. The second gathering comes 14 days later, and the third 14 days after the second.

The above treatment of the Scuppernong insures the following improved results on the old treatment: The first year we get three times as many grapes, which will, without the addition of sugar, produce a splendid wine, similar to Rhine wine. By adding one-half to one pound of sugar to the gallon we get heavy wines, similar to Malaga, Madeira, and Port.

Scuppernong rooted plants can be raised only by layers; cuttings do not take root, but bleed to death. The seeds of the White Scuppernong produce the Black Scuppernong. The white grape is a grade richer in sugar, and finer in flavor than the Black, Flower, and Mish grapes.

IS TEXAS A WINE LAND?

C. E. Bauer, of Fayette county, Texas, thus writes:

In what is properly called wine-growing Texas, and especially in this district, there has as yet been little done in vine culture. Only here and there have one or more species of grapes been planted, which, in the majority of cases, have returned a very poor result, and have soon disappeared either on account of the climate or in consequence of neglect. Of the transatlantic vines the greater part do not prosper here; some species will bear and ripen tolerably, but only for table use, as they are never reliable enough to be raised for the wine-press.

There is, however, a species here, forwarded to us by Mr. Brink from the garden of Dr. Moore, in Houston, which promises to become very profitable, and, according to my judgment, it is the Catawba, at least it resembles it strikingly. Messrs. C. Schuedemagen and Carl Vogelsang have vines of it in bearing, and I had during the present season the opportunity of seeing them in full fruit. They bear a luxuriant crop and yield good claret. During the present as well as the last season, however, they were somewhat affected by the dry rot, but this may have been in consequence of the wet seasons, which were unfavorable for vintagers, and moreover, in both cases, the vines were not sufficiently exposed to the air, which ought to be done in every vineyard. Also the roots may have been too flat and shallow, as in both instances the vines were raised from cuttings, which should be avoided in southern States, as it has been proved that in all vineyards planted with cuttings dry and wet rot and mildew have prevailed a great deal more than in those planted with roots. It is an ungrateful job to plant cuttings here. I have planted such for three consecutive years, and each time, on account of dry weather, have lost two-thirds of them. We have, therefore, to practice the layering of the plants so that we may more speedily and more surely raise plants with roots.

The best and surest way, however, to raise acclimated and richly bearing vines would be to improve our own indigenous Texas wild grapes, for even the European vines of the highest fame, as Chasselas, Muscat, Traminer, Malvasia, Reisling, &c., were not always what they are at present, and only by constant improvement have they been brought to the present climax of perfection. We have

three principal native species, (of which each one has several varieties,) viz: the Mustang, the Postoak, and the Winter grape.

The Mustang bears a cluster of middling size, with large berries, well shouldered, of thick skin and dark bluish color, covered with blue bloom and of sharp acid taste, and ripens at the end of July. Many prepare from this species wine for domestic use, but it is mostly quite inferior in quality.

The Postoak bears also clusters of middling size, well shouldered, with large berries of thick skin, but they are of dark brown hue and of spicy acid taste, and ripen near the end of July. Of this species I never yet have seen fermented wine.

The Winter grape with middling large, rather long bunches, without shoulders, has very small round berries of thin skin, transparently brown, covered with bluish bloom, of exceedingly pleasing and spicy taste, only a little too acid, ripens in October. When gallicised and the fermentation is properly guarded, it yields an excellent claret.

The latter two species are adapted for general cultivation, but neither scaffolding nor pole could follow the exuberent growth of the Mustang and render it the necessary support. The Postoak does not creep high and easily grows, even from cuttings. The Winter grape is the finest and noblest of all three, and bears also on low vines, but cuttings of it cannot be coaxed to grow even by the most tender care.

There, are some other species of grape in Texas, as the Muscatine, which is mostly found near the shore, but it shows itself very sterile in its wild condition.

We need not be discouraged by the failure of some persons, as most of them do not understand anything of the culture of the American grape. I have never seen as yet a vine trimmed according to the splendidly successful renewal system, and no one as yet could give me thorough information as to the amelioration of vines by and through themselves, so whatever knowledge I possess I have had to acquire from books and correspondence. Let us unite and begin the work, for there is not a hill between the Sabine and the Rio Grande, nor a valley from the western mountains to the Gulf, where the luxuriant vines do not smile from the top of the mighty oak and with exuberant clusters of delicious fruit proclaim to us: Texas is a wine land!

INSECTS INJURIOUS TO THE GRAPE.

S. V. Rathvon, of Pennsylvania, furnishes the following paper upon a subject of increasing interest among grape-growers:

The grape vine is, unfortunately, subjected to the depredations of quite a number of insects of various species, but perhaps there are none more troublesome or more pernicious in their effect than the different species of "leaf hoppers" that infest it, and which are sometimes very improperly called *thrips*. Before we enter into a discussion of the habits of this *spurious* thrips, perhaps it would be well and useful to have a more correct understanding of the true one, in order that we may know precisely where we stand and what we are talking about in relation to their history and habits.

The true "thrips," of which there are several species in the United States, all belong to the single family *thripidæ*, and they constitute Mr. Haliday's order *thysanoptera*.* They are minute black insects, rarely exceeding a line in length, with four equal, long, narrow, membranous wings—neither folded nor reticulated—with long ciliæ, or fringes, all around both edges, and laid horizontally along the back, when at rest. There is very little difference, in the general form, between the *larva*, the *pupa*, and the *imago*. In the first state the wings are entirely absent, in the second they are present rudimentally, and in the third they are fully developed. The commonest species usually occurs most abundantly about the time of the wheat harvest, and hence it has been supposed that this insect (*Thrips cerealeum?*) is in some manner connected with the injury of the crop; but this, from recent observations and inves-

* Fringe-winged insects.

tigations made by competent and intelligent observers, is found to have been a mistake. The *thripidæ*, so far as their habits are known, are not vegetable feeders at all; but, on the contrary, they feed on the eggs and larva of the wheat midges, bark-lice, leaf-gall insects, flea-beetles, and various other species, and are, therefore, carniverous or cannibal in their habits.

There are, however, some of the most respectable European authorities who have generally described the various species of thrips as injurious to vegetation, but Mr. Walsh, of Rock Island, Illinois, assures us that they are all entirely mistaken. The mature insect is very small, and the larva is still less; and as it is in this latter state of an orange color, those English farmers, upon whose reports both Messrs. Kirby and Curtis seemed to rely in their descriptions of its habits, may easily have mistaken it for an enemy of the wheat, when, as Mr. Walsh positively asserts, it only visits the wheat heads to feed on the eggs and larva of the wheat-fly already there. If this be really so—and every closely observing wheat-grower may have an opportunity of testing it for himself—then our American entomologists have made a step in advance of those of Europe. But whether this is really so or not it has nothing to do in determining what a thrips really is, in contradistinction to that of another insect which passes by that name. European authors say that the males of these insects are *apterous*, and that only the females have wings; but as this differs widely from the usual order that obtains in other allied species, they are probably also mistaken in this. My object being merely, in this introductory part of the subject, to convey to the mind of the reader an intelligent idea of what a thrips is in its *form*, in order that it may not be confounded in *name* with an insect of a different order, form, and habits, I do not deem it necessary to make any suggestions in regard to a remedy for that from which fruit-growers have not, as yet, suffered any injury. I will just remark, in conclusion, that I have seen the common species in millions during harvest time, and that when they light on the exposed parts of the body they cause an unpleasant sensation, perhaps by their bite.

Having said this much in reference to the true thrips, whose real character may not be truly known in this country, I pass on to consider the "vine-leaf hoppers," and others, which infest the grape leaves in various ways, and to which have been applied, mistakenly, the name of *thrips;* a practice which only tends to involve the whole question with mystery and untold difficulties; because, when inquiries are propounded to the entomologist, without accompanying them with specimens of the insects complained of, he is altogether in doubt what answer to make, in consequence of this confusion of names. The *vine-leaf hoppers*, or at least a number of them, belong to a family of small *homopterous* insects, called "tettigonians," (*Tettigoniidæ,*) and are of several genera, the most common of which is *Erythroneura.* The most common species of this genus is *E. vitis*, and is probably the one that is generally alluded to when grape-growers make their complaints about the "thrips," in various parts of our country. These insects, of which there are some eight or nine species, are all of the same shape, and pretty much all of the same size, but differing from each other in color and general markings; and even the same species differs very much in its various stages of development; the young also differing from the adult in being without wings. Dividing one inch into 100 parts, these insects, when matured, will measure from 12 to 15 of those parts, in length. Their bodies are broad in front, and taper backward to the end of the abdomen into a cone shape, or like a miniature Minié rifle slug. The head is broad, and the antennæ are short and bristle-shaped. The upper wings extend beyond the body, and are deflexed, closing over it roof-shaped. The anterior and medial feet are small, but the posterior pair are long and armed with small spines along the outer margin of the *tibia*, something akin to the common grasshoppers, which gives them immense leaping powers; a power which they never fail to exercise when an attempt is made to capture them, or when they are disturbed. The adult species, however, do not depend wholly upon leaping, but have also the power of an extended flight. If their interruptions are not of too violent a character, they will elude their enemies by merely dodging around to the under side of the leaf, instead of leaping or flying. Their colors are different shades of yellow, green, pink, white, and brown, according to species and stages of development, diversified by bands and markings of various kinds. They usually attack grape leaves in swarms, near the end of July, and during the months of August and September; and, as every grape-grower well knows, they are exceedingly injurious, destroying the vitality of the leaves, causing them to become crisp and shrivelled, and to fall prematurely. These insects, however, do not gnaw holes into the grape leaves and feed upon their entire substance, as some others do; but, on the contrary, they pierce them with their small sharp *haustellum*, or sucker, and drain them of the sap that is necessary to their health and thrift. The eggs are deposited on the under side of the grape leaves in the month of June, in clusters, and when the young come forth, they for a time remain in the same place, with their suckers inserted in the leaf, and are actively engaged in sucking the sap. From that period until the 1st of August they moult several times, and their white, cast-off skins may often be found in numbers upon the leaves. As they grow older they become less gregarious, and leap from one leaf to another with increased activity.

It would be impossible for me, in a limited paper as this must necessarily be, to enter into a specific description of all the insects that in various ways attack the grape vines, and therefore I can only allude to them in general terms, and even then, I am compelled to omit many that may have come under the observation of grape-growers in different localities,

from the fact that the history of many of them is still unknown, and those species that may abound in one particular locality may be wholly unknown in another. The next most common species of these insects belongs to the genus *Otiocerus*, of which, perhaps, the *O. coquebertii* is the most common example. These insects belong also to the family *Tettigoniidæ*, and are nearly of the same size as those of the former genus I mentioned, but more slender in their forms. But as they are more common to the wild grape than the cultivated varieties, it will be unnecessary to do anything more than to make this passing allusion to them, and also to say that there are some 9 or 10 species of them, comprised under the genera *Otiocerus*, *Anotia*, *Brachymorpha*, and *Naso*, and that some of them are of a shining black color, and have the anterior portion of the head extended into a cone shape; with very short wing covers. In addition to these "vine-leaf hoppers," there are several species of *Thelia*, commonly called "tree hoppers," which are much larger in size than the former, but which do not occur in such formidable numbers. These belong to the family *Membracidæ*, and in shape approach the form of a beech nut; often with a perpendicular protuberance arising from the thorax of the males; being of a chestnut brown in color, and about one-third of an inch in length, and one-fourth of an inch in height; and one species, *Thelia univittata*, having a whitish or yellowish stripe along each side, extending from one end to the other. Another species, *Acutalis dorsalis*, of a greenish white color, with a large black spot on the back, is also found on the grape leaves. There are three species of insects belonging to the order *Hemiptera*, or "half-wings," nearly allied to those before named, that are injurious to the vine when they happen to occur in great numbers, which, however, fortunately is not often the case. The insects are from three-eighths to five-eighths of an inch in length, and very nearly the same across the widest part of the body, and are of a green color; and although sufficiently large, one would suppose, to be easily detected, yet so near are some of them to the color of the leaves, that they are often entirely overlooked. They belong to different genera, namely, *Pentatoma*, a grass-green in color; *Raphigaster*, the same color, edged all around with a yellow marginal line; and *Arma*, of a greenish or yellowish gray, with brown punctures on the wing covers, which, in some species, are red towards the ends These insects, like all of the foregoing, are *haustellated* or suctorial in their habits, stinging the leaves and feeding on the sap. But these do not include all the "sap-suckers" that infest the grape vines, for, in addition to these insects are also various species belonging to the great family *Aphidæ* or "plant lice," especially the *Aphis vitis* and the *Pemphigus vitifolia*, small in size, and generally too well known to need a specific description here. But there are other orders of insects found on grape vines that eat up the buds or the entire foliage, either in their larva or mature states, or in both; and perhaps the most numerous and destructive of these is the "blue grape-leaf beetle." This insect belongs to the order *Coleoptera*, and is the *Haltica chalybea* of authors, and in some localities is known as the "grape-vine flea-beetle." In early spring the adult insects cut off the buds of the vine, and later in the season their larvæ destroy the leaves, and if left alone, they multiply rapidly, and eventually strip the vine of its foliage and destroy the crop. They undergo their transformations in the ground, and the adults hybernate during the winter season, so that their extermination ought to be effected in their larva state; they are then a small brownish bristled worm. Then, in addition to these, and belonging to the same order, we have various species of *Anomala*, about one-third of an inch in length, that feed upon the grape leaves. These insects bear a close resemblance to the famous "rose bug," only more robust in form, and as they are gregarious, and often occur in great numbers, they become very injurious to the vines. The rose-bug itself, *Macrodactylus*, is very often found on the grape vines when they are in bloom, and I have often known them to cause the entire destruction of the crop, by devouring the flowers and buds. Last, not least, of the destructive coleopteras the *Pelidnota punctatæ*, or six-spotted "grape beetle." This is a large brownish yellow beetle, of various shades, found on the vines in the month of July, and is too well known to need a special description at this time.

Of the *lepidopterous* order there are various species that belong to the *Sphinx* family, that in the larva state feed on the foliage of the grape vine. These belong to the genera *Chærocampa* and *Philampelis*, and in their larva state are large cylindrical, fleshy worms, approximating in form to the "tobacco worm," and are of various shades of color, from a pale green to a light velvety brown, with oblong cream-white spots along the sides, and a projecting horn from the upper side of the last segment, pointing backward. The matured insects are large parti-colored "hawkmoths," and they undergo their final transformations under ground. They are found on the grape-vines, eating the leaves and sometimes cutting off the fruit, in August and September. Then we have the larvæ of *Procris americana* and *Alypia 8-maculata*, that infest the grape leaves in colonies; usually found on the under side of the leaf, lying side by side, and moving along in a body, destroying all except the coarser veins as they go. The former is yellow, dotted with black, and the latter is light blue, banded with black. These spin a flat cocoon, side by side on the leaf. The former comes forth in the month of July, a small black moth, with a bright yellow band around the neck; and the latter in May or June, of the same color, but more robust than the former, having yellow shanks, and with two yellow spots on each of the fore wings, and two white ones on each of the hind wings. The latter insect is, however, not so common as the former. The larvæ of the beautiful "wood nymphs"—very much resembling the above named, only larger—are also found on the grape vines. These

belong to the genus *Eudryas*, and are of a milk-white color, with the wings beautifully bordered with brown, and greenish and waved with blue. These insects are not so common as some of the aforenamed. The larvæ of the miller moths sometimes infest the grape vines. These belong to the genus *Spilosoma*, and are of various species. The caterpillars are from an inch to an inch and a half and more in length, and are densely covered with long yellow or white hairs. The mature insects are mostly virgin white, and are commonly called "millers." There are also several species of insects of the order *Orthoptera*, which feed sometimes upon grape leaves, pretty much all belonging to the genus *Œcanthus*, but commonly called "tree crickets." Indeed, all of the insects belonging to this order, except a single species, in this country, are leaf eaters, and it might possibly transpire that they all would eat grape leaves if they could obtain nothing else more palatable. These tree crickets are usually found on the vines in the month of August, but are as often found on other species of vegetation, especially on trees, as they are on the vine, but they somehow cannot be very prolific, as I have never, in twenty-five years, found more than two or three together in the same place. They are only noticed here because they belong to the company of noxious insects that infest the grape vines; and, although they may do little or no harm, yet it is quite certain that they do no good. These insects are mostly of a white, or pale yellowish or greenish tint in color. The females are of a darker color than the males, and might easily be, and no doubt often have been, mistaken for a different species. Their antennæ are exceedingly long and thread-like; the feet are also long and slender, especially the posterior pair, which are more than twice as long as the anterior and medial pair. The wing-covers are shaped like a boy's "bat," and overlap each other horizontally on the back. The total length of the most prominent species (*Œ. niveus*) is about half an inch from the head to the end of the abdomen, but the wings extend a quarter of an inch beyond. Like the "katydid," to which they have a family alliance, they sometimes enter houses in the cool evenings in September, and make a sharp, shrill monotonous noise, which is often continued throughout the night, to the great annoyance of many nervous people. So far as concerns a preventive or a remedy for the foregoing insects, what would be applicable and useful against one species might perhaps be employed with the same efficacy against the whole of them, or any others found upon the grape vines, of which there are a number of species, which space will not permit me to mention in this paper. In enumerating remedies, allow me to remark in the beginning, that boxes put up for wrens and bluebirds, in the grapery, have been found effectual, although not wholly so. Some insects appear in such vast numbers, and multiply so rapidly, that birds seem to have a surfeit of them, and at length to cease capturing and feeding upon them, especially towards autumn, when the ripened fruit begins to appear. Therefore, birds ought not to be depended upon wholly. Syringing with decoctions of tobacco, and saline and saponaceous solutions, ought to be resorted to instead. Much has been claimed quite recently for diluted sharp vinegar—say half and half or two-thirds water, or even three-fourths—according to the particular insects, or the season, and state of the vegetation, to which it is applied. Diluted carbolic and cresylic acid—say a half pint of the acid to a gallon of saponified water—comes recommended as a "sure cure" for nearly all insects. It is claimed, at least, that adult insects will not deposit their eggs where this acid has been employed; besides, it is a good antiseptic and disinfectant. These acids can now be obtained in our drug stores, and sell at about one dollar a pound, which is about three half pints of the fluid acid; but they can also be obtained solid, for about seventy-five cents a pound.

Within the last two days an imposing circular has been placed in my hands, purporting to have been issued by J. Ahearn, No. 63 Second street, Baltimore, Maryland, in which is advertised a new patent remedy for the destruction or prevention of all insects of whatsoever kind that infest vegetation, and especially the different kinds of fruit trees; and for the invigoration of trees, shrubbery, and plants. It is called "*Best's Patent Fruit Tree and Vine Invigorator*," and claims a great deal—perhaps too much—much more, I apprehend, than will ever be realized. I will not condemn it, however, unheard and untried; there may be something in it; moreover, it comes with a large number of horticultural recommenders, principally from Maryland, Ohio, Indiana and Kentucky. From Pennsylvania there is only one—Mr. Nathan W. Secrist, of Middletown, Dauphin county—who, it appears, has purchased the right of that county. I am acquainted personally with only one of these recommenders, and he is a man of intelligence and integrity. It might perhaps be well for fruit-growers to make a trial of this remedy, if they have not already done so; but as I know nothing more of it than what I have seen in print, I can do nothing more than make this suggestion at this time, leaving it optional with those interested to try it or not. A remedy of some kind is so very desirable at the present time, that fruit-growers must submit to the liability of being deceived, in order that a reliable remedy may be discovered, and unreliable ones may be exposed. Whatever the remedy may be, however, in order to be successful, those who use it should apply it perseveringly and judiciously, in order that its true merits may be developed, because an injudicious and partial application may be worse than none at all. Most of the insects mentioned in this paper are more or less preyed upon by insect parasites, so that they may really not be so formidable as they seem, bad as they are; and these parasites render a greater assistance in arresting the multiplication of some species than is apparent to the casual observer. *Trogus fulvus*, a beautiful reddish-brown wasp, with black shining

wings, and about the size of a common paper-making wasp, is parasitic on the larger species of lepidopterous larvæ that infest the grape vines. There are also various minute species of Hymenoptera, belonging to the genus *Microgaster*, that deposit their eggs in the bodies of the *Sphinx* larvæ, in great numbers, which eventually destroys them.

In conclusion, I will mention that there is a species of *fungus* that is found on the grape leaves, which is as bad in its effects as the "leaf hoppers" are, or perhaps any other insect. This, sometimes, may be noticed about midsummer, and continues late in the season, causing the leaves to shrivel up, become crisp and brown and to fall prematurely, exposing the fruit and preventing its ripening. It usually occurs on the lower side of the leaves, and many persons have taken it for the effects of the "hopper," or "thrips," as they call it, but not so; I have seen abundance of it where no insect of any kind was present, and have plainly detected it by the aid of a common magnifier. I have also arrested its progress by the immediate removal of such infected leaves, or parts of leaves, as soon as I discovered them. This fungus is called "mildew," and it, or an allied species, communicates itself also to the fruit, injuring its quality very much. A pair of pruning shears, artistically handled, is the best thing I know of for the cure of this fungus; but by all means burn the leaves as soon as removed.

LOCUSTS OR GRASSHOPPERS IN KANSAS.

S. J. H. Snyder, of Monrovia, Kansas, writes as follows in reference to the grasshopper visitation in that State:

The "Egyptian locusts" or grasshoppers, so called, are assuming a position here as a "regular institution;" our farmers are hopeful, however, that they may finally "fizzle out." The ground on which our faith is based is the fact that they were unknown here prior to the year 1866. I have myself been here all the time since 1854, and neither saw nor heard of them until they made their appearance in that year (1866:) the Indians also assert the same fact. In 1866 they came from the west, being brought here by a westerly wind, which strangely continued to blow from that same quarter for about three weeks, their regular advance being reported to us from Denver, Colorado, by freighters and travellers until they crossed the Big Blue, when in a few days the country was covered with them. The fact is clear that they came from the land of their nativity in the mountains. This season they came from the north or northeast, after a regular wind from that direction of some four days' duration. Their first appearance was in broken sections scattered over the country, but in about a week after, on the 11th instant, the head of the main column advanced with a regularity almost majestic, and pouring down myriads upon myriads of these destroying pests upon the defenceless farmers, who were thus suddenly plunged from the highest joy of an unbounded harvest, into the very depths of painful uncertainty and foreboding ruin! This monstrous column was bounded on the west by a well-defined margin some 14 miles west of St. Joseph, 22 miles west of Atchison, 7 miles west of Monrovia, 3 miles west of Grasshoppers' Falls, 4 miles east of Topeka, and so on in a southwest direction toward the Mississippi, at the mouth of the Osage; its eastern boundary I have not yet learned. Their flight is a very remarkable phenomenon. From about 10 to 4 o'clock each day, while they move, the very heavens are covered as with a pall, sometimes obscuring the sun, the whirling hum of those below resembling an immense number of bee swarms, and their sound that of dim distant thunder. Higher up, where they strike the current, the noiseless, ceaseless tide flows on with a regularity and precision truly astonishing; and when beheld toward the sun the seeming immensity of space in which they move, the instinct that governs their flight, and their countless numbers, fill the mind with a strange admiration and a sense of overwhelming amazement! An attempt to estimate their numbers would be utter folly, and if numbered no finite mind could comprehend a fraction of these countless hosts! Their destruction of vegetation is equally amazing; the tobacco and Jamestown weed (stramonium) are devoured as readily as the cabbage and delicious peach! They are depositing their eggs everywhere, in the mellow, field and in the beaten roadside, and these number still a thousandfold more than the incalculable number of individuals that swarm in myriads all around. I hear that a column has also descended upon the Big Blue and its tributaries, but this needs confirmation.

HUMBOLDT COUNTY, NEVADA.

Our Humboldt, Nevada, correspondent forwards to this Department a copy of the report of the county surveyor and county assessor of Humboldt county,

from which we extract the following paragraph in reference to the agricultural interest:

The area of Humboldt county is about 16,000 square miles, equal to the aggregate area of the States of Connecticut, Rhode Island, Massachusetts and Delaware. There are probably 150,000 acres of tillable and 650,000 acres of grazing land, and the quantity of the former may be greatly increased by irrigation; this has been done already in many places to considerable extent, and at no distant day it will be practiced much more extensively, particularly in that section through which the Humboldt canal is being constructed, and on either side of the Humboldt river. The soil is fertile and requires only irrigation to render it productive for nearly all kinds of cereals and vegetables. A great amount of rich alluvial land can be reclaimed in the lowest part of Paradise valley, by means of a canal through the centre of the same, to carry off the surplus water during the wet season; the soil is of such a character that a canal can be easily constructed. This valley cannot be surpassed in the State for agricultural facilities. It is 35 miles in length and from 6 to 10 miles in width. There are numerous streams in different parts of the valley, that afford ample water for irrigating purposes. This section is pleasantly located, as its name would indicate, and is already a valuable portion of the county. A flouring mill is being erected on Martin's creek, near the head of the valley, at an expense of $15,000. Aside from this valley, Queen's river, Grass and Pleasant valleys, Big Meadows, the Humboldt river section, and the mountain canons, produce large quantities of cereals, vegetables, and hay. The following were the leading productions last year: barley, 2,500 acres, averaging 40 bushels per acre, worth 5 cents per pound; wheat, 1,200 acres, average 40 bushels, 5 cents per pound; potatoes, 50 acres; hay, 3,000 acres, average per acre 1½ ton, worth $20 per ton. There were in the county 900 oxen, 350 cows, 600 horses, 60 mules, 650 stock cattle, 300 calves, 300 hogs, 1,500 sheep, 20 colts. Average price of work oxen per yoke, $150; cows, each, $75; beef cattle, per 100 pounds, on foot, $12; sheep, ditto, $12; hogs, ditto, $12. The county is peculiarly adapted to stock-raising, the rich bunch grass of the mountains, and the blue-joint on the Humboldt river and Big Meadows, growing in abundance during the warm months, and the white sage or "winter pot" is ample for the winter. The tules of the Humboldt river are highly favorable to the raising of hogs, which live and fatten there with little trouble or expense. The Pacific railroad is now running through the whole length of the county.

YUBA COUNTY, CALIFORNIA.

A correspondent in Yuba county, California, writes as follows:

Much of our rich river bottoms have been and are being destroyed by the *debris* coming down from the mines in the mountains. Our streams and rivers are thick with mud, and during high water in winter a heavy sediment or deposit is left on all the bottoms overflowed. The river channels are filled up from 20 to 30 feet, or within a few feet of the bank along these bottoms, so that almost every rise of water overflows the land. Upon these lands were our orchards, the most extensive and celebrated in the State, worth from $25,000 to $250,000. These orchards are beginning to die out. A few trees did not bud in the spring, being dead; the remainder came out and bloomed and set the fruit, and then died, so that the peach crop was a failure. Hundreds of acres are entirely dead, and the remaining trees must die the next or succeeding year. The apple and pear have been but little affected as yet from these deposits; but a year or two more and all the lowland orchards will be destroyed. Hundreds of acres of vineyards have suffered in the same way, so that the crop was an utter failure. Time, however, will work a change, as the higher lands are found to be the best farm lands and the best adapted to fruit if properly cultivated, that is, ploughed deep and well tended. We can well afford to lose the bottoms to gain what were once deemed barren plain and hill lands. Over ten years ago I began to experiment upon these dry plain lands, and for ten years, as president of the agricultural society of the southern district of California, I have warned farmers against planting vineyards and fruit trees upon the lowlands, and urged upon them the feasibility of making homes upon and cultivating the higher lands. During all that time I have urged deep ploughing and summer fallowing, and to-day Yuba county and its vicinity has more acres of dry land under cultivation and does more summer fallowing than any other section of the State. This county suffers more by the loss of her rich bottom lands, but has to-day more wealth in her upland farms than any other county in the State.

THE "DIFFUSION" PROCESS.

Dr. Theodore Canisius, late consul at Vienna, now of Aurora, Kane county, Illinois, (where a beet-sugar enterprise is located,) communicates the following

with regard to the "diffusion process," the discovery of Jules Robert, a sugar manufacturer of Austria, for extracting the saccharine matter from cane, beets, or other sugar-yielding plants:

This process is called "diffusion" from the fact that it is based upon the natural process "*endosmose* and *exosmose*," which means the interchange of two liquids of different components, if these liquids are only separated from each other by an animal or vegetable cell-membrane. Where such two different liquids, as before stated, are brought into close contact and only separated by the membrane of a cell, an interchange of the liquid outside the cell and of the liquid within the cell takes place till both liquids become identical in their composition. Scientific men call this natural process "membrane diffusion."

It is well known that the cane consists of a large number of cells, differing in size and form, and the contents of which are of a different nature according to the quality and situation of the cell. Within those cells are, as well as the sugar, the salts, in short, all the soluble matters which we find in the liquor obtained by our sugar mills, as also the insoluble substances remaining in the bagasse or offal. Each cell is enclosed by a membrane, as already remarked, giving it its shape and form. This membrane, however, is not absolutely closed; it has very minute perforations of larger and smaller dimensions, but the greater number are very small. We, therefore, may compare the cell membrane with a fine sieve, or with a sack of delicate, loose, and irregular texture, containing corpuscles of different sizes, and which corpuscles may, under favorable circumstances, leave their enclosure with more or less facility, in exact proportion to the size of the perforations in the sieve-like cell-membrane. The large corpuscles within the cell-membrane must necessarily meet with more hindrance to escape through the cell-wall, for the reason that the cell-membrane has a greater number of very minute perforations than of large ones, in consequence of which the large corpuscles escape with difficulty, while the small corpuscles or grains, (the so-called *crystalloides*,) pass without hindrance through the minutest perforations of the cell-membrane.

The relative proportion of the sizes, the volumina of the said corpuscles in the juice, like sugar, salts, albumen, &c., can only be found out by the atom weight and the specific weight of those minute bodies, and the way of calculating it is to divide the ciphers representing the atom weight by the ciphers representing the specific weight. Without entering further upon such calculation I will remark that bodies of a high atom weight, but small specific weight, like gum, pectin—the gelatinizing principle of plants—albumen, &c., have a large atom volume and represent the large or coarse particles of the cell, while bodies of small atom weight, but large specific weight, like sugar, salts, &c., representing, consequently, finer corpuscles or grains, have a small atom volume. It is therefore apparent that the liability of soluble chemical compositions to leave their cell, or, according to our example, to go through the small meshes of the cell wall, is the greater the smaller the atom weight of the corpuscles is. We find, under otherwise identical circumstances, that this liability exists in a higher degree in such corpuscles which crystallize, like sugar, salts, asparagin, &c., and termed crystalloides, than in corpuscles not crystallizable, like gum, pectin, albumen, &c., termed by scientific men colloides. In short, the tendency of the matter within the cell membrane to leave this enclosing wall is increased proportionately with the smallness of the atom volume and the readiness of such matter to crystallize.

We see by the above that the extraction of the saccharine matter from the cane or beets by means of "diffusion" is a microscopical, sifting process, entirely different from all other methods now in use in the European beet sugar manufactories or the American cane mills to extract the saccharine matter from the sugar plants. This sifting out of the corpuscles within the cell membrane is done through the aid of water. It is clear that through the application of

the diffusion process not only particles within the cell wall will find their way out of the perforated membrane, but that also some portions of the water surrounding the cell membrane will penetrate through the minute meshes of the cell membrane into the cell to fill up the room vacated by the corpuscles which left the cell. This process goes on without intermission until on each side of the cell wall two liquids are formed, identical in their compositions. As soon as this is the case an equilibrium between the liquids out and inside of the cell has taken place, and a further exchange of water and crystalloides is not any longer possible. When the liquid on the outside of the cell membrane is removed and replaced by fresh water the sifting process begins anew, until again an equilibrium is effected, and so on, till finally all the crystalloides have left the cell.

The water which finds its way into the cell exercises, according to scientific and microscopical investigations, a special influence upon those particles in the cell membrane termed coarse-grained bodies or colloides, which are non-crystallizable substances; namely, it coagulates the same into one mass as soon as the crystalloides interlining or separating the colloides from each other have left the cell membrane, thus rendering the non-crystallizable matter unable to penetrate through the meshes of the cell wall.

Technical chemistry has a procedure by which the foregoing may be well illustrated. It is called the "Bahmil flour trial." The wheat flour contains principally starch and gluten, being in an intimate intermixture in the flour. If we enclose a small quantity of wheat flour—say a teaspoonful—in a piece of fine silk bolting cloth, and tie this up in the form of a little bag, we can, by pressing and kneading it under a constant stream of water, with the hands wash out all the starch of the flour through the minute meshes of the cloth, while the gluten coagulates into an adhesive paste, which can be drawn out to long threads. This procedure gives us a beautiful illustration of the diffusion process, for the perforated cane or beet cell membrane will, under the application of water, allow the sugar and salts (corresponding to starch) to pass through the meshes of the cell membrane, while the coarser matters (albumen, pectin, &c., corresponding to the gluten of the wheat flour) coagulate in the cell to one body. The diffusion process may, therefore, justly be termed a sifting process, of which the result is on the one hand a sifted out liquor, furnishing the sugar, and on the other a sieve-like membrane containing the colloides and forming the offal or bagasse.

It can readily be seen that the liquor obtained in this way has become already, through the action of the cell membrane itself, relatively a pure juice, from the simple fact that those particles which do not form sugar are retained in the cell membrane, an advantage doubtless appreciated by persons who know what it is to purify the liquor obtained in cane mills by the pressing and centrifugal process.

The new process will doubtless bring about an entire revolution in the manufacture of sugar. The old processes destroy the cell membrane in order to obtain the saccharine matter, by which procedure the manufacturer receives a liquor mixed with all the impurities the beets or the cane contain. The old methods are also extremely expensive, the machinery to get the liquor from the cane or beets being costly and requiring constant repairing; and besides the purification of the filthy juice requires great labor and expense.

BRITISH RECEIPTS OF COTTON AND WHEAT IN 1868.

The trade and navigation returns of Great Britain afford encouragement to the cotton-growers of the United States. The exhibit of receipts from this

country are more flattering than those of last year. The increase is 4 per cent. for the period between January 1 and September 30. They constitute 55 per cent. of the total receipts from all quarters.

On the other hand, British India, for the same period, has suffered a diminution of cotton exports amounting to 26 per cent. Turkey shows a still greater falling off, 43 per cent. Egypt, with all her efforts, including the introduction of steam ploughs, sends 5 per cent. less than last year. Only Brazil makes an increase. The decrease from other sources of supply averages 20 per cent. The following is the statement of receipts for nine months of 1867 and 1868:

Cotton, raw, from—		1867.	1868.
United States	cwts	4,188,054	4,362,983
Bahamas and Bermuda	do	10,439	474
Mexico	do	22	
Brazil	do	504,284	689 511
Turkey	do	55,560	32,345
Egypt	do	891,398	842,521
British India	do	2,963,850	2,187,359
China	do	4,707	
Other countries	do	225,919	178,856
Total		8,844,233	8,294,049

The exhibit of receipts of wheat from this country for the same period shows equally gratifying figures, as compared with the receipts to the same date in 1867, the increase reaching nearly 140 per cent., while the receipts from Russia show a falling off of about 28 per cent.; Prussia 38 per cent. decline, and Chili 33 per cent. decline. Turkey and Wallachia and Moldavia show an advance of 30 per cent., and Egypt 350 per cent. The following figures show the total receipts in cwts. of wheat from the countries named for the nine months ending September 30:

Countries.		1867.	1868.
Russia	cwts	9,916,855	7,142,034
United States	do	1,980,007	4,714,203
Prussia	do	4,698,876	2,909,271
Turkey and Wallachia and Moldavia	do	1,792,489	2,882,596
Egypt	do	635,169	2,870,068
Chili	do	1,740,631	1,153,006

AGRICULTURAL COLLEGES AND MODEL FARMS.

J. H. McChesney, United States consul at Newcastle-upon-Tyne, in a letter to the Commissioner upon the subject, says:

I have visited the Royal Agricultural College at Cirencester, and my judgment as to the expediency of carrying on a model farm in connection with an agricultural college is fully sustained by the experience of that institution. They owned a farm of over 500 acres, and for some years conducted it in connection with the college as a model farm, and though entirely distinct from their experimental grounds, which, of course, are never expected to pay, they not only did not make it pay anything, but lost a large amount of money by it. As long as they permitted the institution to be burdened by this and other bad practices, they no more than maintained an existence. For 20 years they struggled against bad fortune. The farm is now let to an educated farmer, one of their own graduates, with the reserved right to visit it with their students, and the farm pays the tenant, though he has high rental expenses to pay, and answers the college equally well, and the college may now be said to be in a prosperous condition. I believe model farms in all cases to be detrimental to the prosperity of agricultural colleges if attempted by the institution.

COAL ASHES AS A FERTILIZER.

A series of experiments has been in progress at the Museum of Natural History, Paris, during the past season, under the eye of Professor Naudin, to test practically the value of coal ashes as a manure, the results of which seem to confirm the opinion that for such purpose coal ashes are worthless, if not actually injurious to and destructive of plant life. The first experiment was with haricot beans planted in three pots, one of which was filled with coal ashes, another with sandy heath-earth of middling quality, and a third with a mixture of heath-soil and coal ashes in the proportion of three parts of heath-soil and one of coal ashes, three beans being planted in each pot and all of which were sunk in a plot bed and given the same attention. All the beans germinated at the same time, but those in the pure coal ashes had more difficulty in vegetating and developing their first leaves, and from the first were sensibly behind those in the other pots, and soon one of them turned yellow and perished. The plants in the heath-soil produced eleven beans, those in the mixed earth seven, while those in the pure coal ashes made a sorry figure. Their stems did not exceed four and three-fourths inches in height, and one of them was nothing more than a staddle without leaves while the other still preserved their yellow leaves; on each of their stems were three or four flower buds which fell off without opening. Like experiments followed with watermelon seeds, maize, varieties of grasses, &c., with similar results. The last experiment was with the haricot beans again. Two large pots were filled, one with good free earth, the other with equal parts of the earth and coal ashes, and three beans planted in each. Another bean was planted in the open ground of the ridges where the pots were sunk. All the beans germinated, but the plants in the pot containing the coal ashes were weaker than the others. Those in the pot of pure earth became relatively very fine. On the 28th of September, though still green and full of leaf, almost all the pods had reached their normal development and it was easy to reckon their grains. The plants were cut off at the level of the neck and put upon the scales. The three plants grown in the mixture of earth and coal ashes weighed together 78 grams, or an average of $17\frac{3}{4}$ dwts., and bore 8 pods containing 20 developed grains. The three plants in the pot of earth alone weighed 320 grams, or an average of 3 ounces $8\frac{1}{2}$ dwts. each, and bore 20 matured pods, (besides 4 or 5 small, young pods) containing 59 grains; being more than triple the product of the three plants raised in the mixture of earth and coal ashes. The plant from the single bean planted in the open ground weighed 243 grams, (7 oz. 16 dwts.) and bore 15 fine pods, containing 42 beans. Professor Naudin concludes from these experiments that for any of the plants tested coal ashes have been neither a manure nor even an earth of the most infertile quality.

AGRICULTURAL STATISTICS OF AUSTRALIA.

The land alienated from the crown during the year 1867 amounted to 144,021 acres, bringing up the total to 3,568,724, giving an average of nearly 21 acres to each man, woman, and child of the population. The enclosed land amounts to 4,712,276 acres, being an advance of 173,187 acres upon the previous year. The wheat crop of the year, through red rust, was reduced to an average of $4\frac{2}{3}$ bushels per acre, or $9\frac{3}{4}$ bushels less than the preceding year, and all other cereals showed a comparative decline in average product. The acreage in wheat was 20 per cent. greater in 1867 than in 1866, and monopolized 68 acres out of every 100 acres under cultivation, yet the crop proved little more than a nominal improvement upon that of 1858–'59 when the area sown was two-thirds less.

There were 3,499 acres in peas against 1,853 bushels the previous year, and the average yield per acre was 10 bushels 23 pounds. Fallowed land exhibited a falling-off of 10,280 acres. In orchards and gardens there has been an increase of 652 acres, there being now 2,563 of the former and 3,912 of the latter. Vineyards show a decline of 152 acres. The total acreage in vines is 6,209, with 5,869,406 vines in bearing, and 1,022,740 vines yet unproductive. The quantity of wine made is returned as 863,584 gallons, or 128,601 gallons more than at the previous vintage. The production of the past three vintages has averaged 816,000 gallons, or nearly 5 gallons per head of the population. The shipment of wine amounted to 8,924 gallons, valued at £1,901, against 20,574 gallons, with £50,545, in 1862. The produce of an acre of vines is returned as 140 gallons. A large increase in the number of sheep is reported, over half a million, and the diminution in the number of horned cattle, so rapid of late years, has reached its limit, being for the past year merely nominal. Since 1863 the number of cattle has decreased one-half, whereas for the past five years the increase in the flocks has been 30 per cent. More attention is now being paid to dairy products for the supply of the home market and for exportation.

AMERICAN CORN IN PRUSSIA.

Experiments made with samples of corn sent out from this Department, through Q. H. Brockman, United States consul at Koenigsberg, Prussia, for trial in that country, have been attended with but limited success.

The varieties sent were Darling's Early sugar corn, Stowell's Evergreen sugar corn, large sugar corn, Adams's Extra Early corn, improved seed corn, and King Philip. At the agricultural academy in Popellau, near Rybrick, Upper Silesia, the King Philip alone ripened, but this variety turned out of superior quality and its cultivation will be continued. The Central Association of West Prussian agriculturists, at Dantzic, reports that though the season was unfavorable, the summer wet and cold, the 40-days corn generally, and the King Philip corn in the greatest part, reached maturity, whilst white corn, white Canadian, and even the red and the versicolor Silesian corn did not ripen. The large sugar corn, Stowell's Evergreen, Darling's Early, and Adams's Extra Early, also failed to mature. Mr. Stetter, a large landholder in Great Mischen, near Koenigsberg, reports that ears formed on the stalks, but the grains contained no starch and were milky. At the experimental farm of the Royal Academy of Agriculture in Waldau, none of the varieties ripened fully before the heavy frosts, but were soft and soon moulded, though the ripest grains were removed from the ears and dried in a moderately warmed room, to be used for seed another season.

HAMPSHIRE DOWN SHEEP.

The following points have been gleaned from a private note to the Commissioner of Agriculture by Robert Morrell, of Manhasset, Long island, New York. His imported ram Chancellor is pictured in the report of 1867. Chancellor was dropped in Quebec, March 23, 1865, out of an ewe imported by John Ashworth, esq., in 1864, from the flock of Edward Hetherington, of Surrey, England, and got by ram "Pride of England," purchased by John Hetherington, in Arlingford, Hampshire, England. The ewes will clip 5½ pounds washed wool, and rams 6½, the quality of wool about the same as Southdown, only longer.

The demand for Hampshire rams, "for crossing for mutton sheep," is greater than I have been able to fill, and have been compelled to rent out my breeding rams in order to accommodate farmers that have been depending on me for this year's lambs.

The sale of 170 Hampshire Down ram lambs, which took place at Basingstoke market a short time since, throws all sales which have preceded it into the shade. The lambs realized over £11 11*s.* per head all around.

The Hampshire Chronicle, an agricultural paper published at Winchester, in the south of England, states that in 1822 the late Mr. George Budd, father of the present owner of the Hatch Warren flock, founded the valuable breed of sheep now so celebrated as "Hampshire Down."

METEOROLOGY.

[Compiled in the Department of Agriculture, from reports made by the observers o the Smithsonian Institution.]

OCTOBER AND NOVEMBER, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain fall, including melted snow, (in inches and tenths,) for October and November, 1868, at the stations named. Daily observations made at 7 a. m., and 2 and 9 p. m.

[We go to press on the 17th—reports received after 14th must be omitted in the Notes, those after the 17th will be used in the Annual Report and in the Smithsonian Reports.]

States and places.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MAINE.		°		°	°	*In.*		°		°	°	*In.*
Steuben	8	62	24, 31	18	41.2	3.24	1	53	17	11	31.8	5.69
West Waterville	8	72	24	21	42.7	0.70	1	57	17, 28	16	32.4	7.90
Gardiner	8	67	31	22	43.5	0.98	1	56	17	17	33.7	6.76
Standish	8	74	30	24	44.2	1.20	1	56	17	18	34.4	6.91
Norway	8	74	31	16	41.6	.....	1	54	17	10	31.0	.....
Cornish	8	74	24	18	42.3	1.13	1	52	28	13	31.2	5.65
Cornishville	8	72	30	24	42.9	0.65	1	54	28	16	32.0	6.64
Averages	.....	.....	.....	.....	42.6	1.32	.....	.....	.....	.....	32.4	6.59
NEW HAMPSHIRE.												
Stratford	5	64	24	10	39.6	1.29	1	50	17	5	27.6	6.88
Shelburne	8	72	24	14	43.0	1.70	1	57	18	20	32.6	.....
North Barnstead	8	71	24, 30	25	45.4	1.51	4	48	17	24	34.8	2.87
Goffstown Centre	8	72	18, 24	25	48.2	1.60	1	56	17	23	36.8	5.60
Averages	.....	.....	.....	.....	44.1	1.53	.....	.....	.....	.....	33.0	5.12
VERMONT.												
Lunenburg	7	65	30	15	41.6	1.30	1	54	17, 30	14	29.6	7.15
North Craftsbury	5, 11	60	30	11	37.4	1.20	1	48	17	10	27.4	5.84
Randolph	8	63	30	15	41, 6	0.45	.....	.....	.....	.....	.....	.....
Woodstock	11	62	24	11	39.5	.....	1	53	4, 23	14	29.9	.....
St. Albans	11	69	30	16	41.8	.....	1	46	16	16	30.2	.....
West Charlotte	11	68	24	22	46.0	2.19	1	51	17	21	34.5	8.88
Middlebury	11	63	24	23	43.6	1.10	1	51	30	18	32.5	6.38
Averages	.....	.....	.....	.....	41.6	1.39	.....	.....	.....	.....	30.7	7.06
MASSACHUSETTS.												
Kingston	8	75	24, 30	28	50.1	2.25	,1	65	17	27	42.2	3.62
Topsfield	8	73	31	18	44.7	0.95	1	60	17, 28	20	34.6	4.88

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued

States and stations.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MASS.—Continued.		°		°	°	*In.*		°		°	°	*In.*
Lawrence	8	73	24, 31	24	44.7	1.56	.....	.....	.....	.....	.....	.....
Georgetown	11	73	23, 24, 31	23	45.3	1.52	14	65	3	17	36.3	5.60
Milton	8	72	24	22	47.0	1.66	1	57	17	20	36.6	4,49
Cambridge	11	78	24	22	48.2	.....	4	60	17	22	37.8	.....
North Billerica	8	76	24	16	45.1	.....	1	58	16, 17	19	35.5	.....
West Newton	8	80	24	20	48.2	.....	1	64	13, 28	22	37.4	.....
New Bedford	8	70	30	27	49.1	1.61	15, 9	57	16, 28	26	40.5	2.85
Worcester	8	73	24	26	46.2	1.14	2	58	16, 28	25	37.6	4.24
Mendon	8	70	24	22	45.0	1.40	1	57	16, 17	22	36.2	3.25
Lunenburg	8	75	24	21	45.5	1.28	1	55	16	20	35.2	4.90
Amherst	11	68	24	19	45.3	1.37	1	58	20	24	36.5	4.80
Richmond	.....	.....	.....	.....	.....	.....	9	53	7	20	35.7	6.40
Williams College	11	69	24	18	47.5	0.94	9	61	30	22	36.0	4.42
Hinsdale	5	66	30	16	40.0	.....	9	57	16	19	33.9	4.35
Averages	.....	.....	.....	.....	46.1	1.43	.....	.....	.....	.....	36.8	4.48
RHODE ISLAND.												
Newport	7	72	24	24	48.4	2.07	9	56	17	24	39.4	4.32
CONNECTICUT.												
Pomfret	8	70	24	21	44.6	0.70	9	62	16, 17	24	36.6	4.42
Columbia	8	76	24	22	48.7	.....	9	64	17, 27	28	39.6	.....
Middletown	8	75	24	25	47.3	0.89	9	67	17, 28	24	38.5	3.85
Colebrook	5	69	30	20	43.7	.....	9	65	28	21	35.1	.....
Waterbury	8, 11	67	24	21	45.7	0.74	9	66	28	22	38.5	4.94
Brookfield	11	70	24	22	48.5	1.20	9	70	28	22	38.9	3.50
Averages	.....	.....	.....	.....	46.4	0.88	.....	.....	.....	.....	37.9	4.18
NEW YORK.												
Moriches	5	78	24, 30	31	54.1	1.00	9	66	28	24	45.1	5.54
South Hartford	11	65	30	21	46.2	2.81	9	59	17, 30	22	36.5	8.30
Troy	11	71	30	26	47.0	1.58	9	58	30	26	38.3	4.94
Garrison's	11	70	24	27	47.0	1.05	9	70	28	26	39.2	6.42
Throg's Neck	11	68	24, 30	32	.....	.....	9	67	23, 28	30	42.0	.....
White Plains	9	75	18, 24	30	50.7	.....	9, 10	70	24	27	42.9	.....
Deaf and Dumb Ins.	11	67	18	30	50.0	2.01	9	66	13, 23	30	42.1	5.13
Columbia College	19	69	30	32	51.3	0.88	9	65	23	30	42.4	3.46
Flatbush	11	68	24	31	50.5	2.66	9	67	28	29	39.8	4.03
Newburgh	11	71	17, 18, 23, 24, 30	34	50.9	0.72	9	70	16	29	41.9	4.28
Minaville	11	67	30	20	42.9	2.16	1	54	30	17	32.4	5.81
Gouverneur	7	68	30	15	42.3	1.95	13	46	23	15	32.0	5.13
North Hammond	10, 14	70	30	23	47.3	1.59	1	56	23	20	35.2	6.37
Houseville	7	64	30	18	42.1	4.18	4	49	30	14	33.4	4.95
South Trenton	6	63	29, 30	24	42.6	2.49	27	44	3	22	32.6	4.74
Cazenovia	5	67	29, 30	24	43.4	.....	10	59	30	15	35.5	.....
Oneida	7	68	29, 30	25	42.0	2.47	4	53	30	19	36.0	10.64
Depauville	7	70	30	23	43.2	3.60	4, 14	50	23	18	34.1	6.09
Oswego	7	68	30	26	45.6	0.92	13	49	30	22	37.4	6.44
Palermo	7	71	30	20	43.4	1.40	4	51	30	15	34.4	6.63
North Volney	7	72	29	24	45.2	.....	.....	.....	.....	.....	.....	.....

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	OCTOBER, 1868.						NOVEMBER, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEW YORK—Con'd.		°		°	°	*In.*		°		°	°	*In.*
Nichols	5	72	18, 30	23	45.7	.....	9	66	30	24	38.3	.....
Newark Valley	5, 7, 11	66	24, 30	22	43.4	.....	9, 10	60	30	20	35.7	.....
Rochester	7	73	18	27	44.3	1.67	4	52	30	24	37.5	4.42
Little Genesee	7	74	18	18	45.3	2.25	10	64	30	22	36.8	2.25
Suspension Bridge	7	76	18	28	46.4	3.60	.....	.....	.....	.....	.....	.....
Buffalo	7	76	29	27	47.2	2.55	4	57	30	22	38.2	4.92
Averages	.....	.....	.....	.....	46.5	2.07	.....	.....	.....	.....	37.6	5.52
NEW JERSEY.												
Paterson	11	69	24, 30	27	49.3	1.31	9	70	23, 28	27	41.2	5.05
Newark	11	67	24	28	49.8	1.25	9	68	13, 23	29	42.3	4.38
New Brunswick	11	69	24	29	48.8	1.34	9	66	28	26	41.7	4.89
Trenton	8	70	18, 30	32	53.5	3.21	10	70	28	28	45.7	5.00
Moorestown	1	72	24	28	51.4	1.62	10	75	28	25	43.0	4.91
Elwood	8	78	18	24	53.9	.....	10	73	28	23	43.6	.....
Dover	5	67	18, 24, 30	29	49.2	1.15	9	71	13	26	41.6	4.82
Haddonfield	11	67	24	31	51.2	1.58	9	66	28	30	43.3	5.60
Newfield	1	80	18, 24	27	52.2	.....	10	75	28	21	42.6	.....
Greenwich	1	70	18	32	53.4	0.72	10	73	13, 28	30	44.8	6.39
Vineland	1, 5	78	18	25	53.5	1.08	10	77	28	26	43.7	7.24
New Germantown	.....	.....	.....	.....	.....	.....	9	70	13	23	39.8	6.70
Averages	.....	.....	.....	.....	51.5	1.47	.....	.....	.....	.....	42.8	5.50
PENNSYLVANIA.												
Nyces	9	70	30	18	44.6	2.05	9	66	28	16	31.5	5.10
Fallsington	10	71	24	31	51.7	1.60	10	72	13	29	43.3	4.70
Philadelphia	1	70	18, 24	35	53.4	2.24	10	72	23	35	45.9	4.53
Germantown	12	77	24	29	51.2	.....	10	75	12, 13, 22, 23, 24	29	42.2	.....
Horsham	11	70	24	29	50.5	1.67	9	71	28	27	42.8	6.35
Plymouth Meeting	11	70	24	29	51.1	.....	10	71	13, 28	27	42.8	.....
Dyberry	5	69	18, 30	20	43.3	.....	.....	.....	.....	.....	.....	.....
Whitehall	11	65	24	24	48.1	.....	9	68	28	25	41.8	.....
Factoryville	11	68	18	20	44.8	1.02	10	65	24	22	37.2	4.22
Reading	1, 6, 11	69	18, 24	31	51.6	.....	9, 10	73	28	30	44.1	.....
Parkesville	13	69	24	27	52.4	1.56	10	70	23, 28	30	42.3	4.56
West Chester	1	68	18, 24	33	52.0	1.16	10	72	12, 13, 23, 28	33	45.1	5.47
Silver Spring	1, 11	72	24	25	50.7	.....	10	78	28	26	42.4	.....
Mount Joy	11	72	18	28	50.9	.....	8	86	13, 14	31	46.1	.....
Harrisburg	7, 11	68	24	30	51.0	0.60	9, 10	67	28	31	43.3	6.22
Fountain Dale	1, 11	70	18	30	49.5	1.60	9, 10	72	28	28	42.5	5.12
Tioga	1	68	18	12	41.6	2.15	9, 10	60	30	18	33.6	4.80
Lewisburg	11	68	18	24	46.8	0.83	10	68	14, 28	25	39.7	5.40
Ickesburg	11	74	30	23	48.5	0.88	9, 10	70	28	20	41.3	6.86
Grampian Hills	13	68	18	17	43.5	2.96	4, 9, 10	60	28	20	35.5	3.26
Johnstown	1	67	30	29	46.8	1.97	8, 9, 10	60	24	23	38.8	.....
Franklin	7	73	18	22	46.4	2.68	9	62	27	24	38.2	4.45
Connellsville	7	78	18	20	49.5	.....	9	68	3	24	40.1	.....
New Castle	2, 7	70	18	22	50.2	.....	9, 10	64	27	24	41.2	.....
Beaver Seminary	7	74	18	26	50.3	0.50	9	67	3	28	42.6	3.10
Canonsburg	7	77	18, 24	25	50.0	1.52	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	48.9	1.59	.....	.....	.....	.....	41.0	4.94

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MARYLAND.		°		°	°	*In.*		°		°	°	*In.*
Woodlawn	11	74	18	30	52.2	2.10	10	72	3, 13, 28	30	43.8	8.42
Annapolis	1	71	18	31	56.1	1.57	10	74	28	28	48.4	5.49
St. Inigoes	7	74	23	36	54.5	0.68						
Emmittsburg	11	78	18	22	49.9		9	76	13, 28	24	42.1	
Mt. St. Mary's Col.	11	69	24	29	49.9	1.97	9	72	28	28	42.1	5.87
Averages					52.5	1.58					44.1	6.59
VIRGINIA.												
Surry C. H	7	83	23	33	59.5		10	82	24	25	48.4	
Johnsontown	1, 8	76	18	36	57.7		10	77	13	32	49.3	
Comorn	1	75	24	34	55.7	1.10	9, 10	74	19, 23, 24	32	45.8	2.55
Mt. Solon	1	78	18, 23, 29	32	56.5	4.00						
Lynchburg	1	72	18	37	57.2		10	72	28	33	48.7	
Snowville	11	75	13	24	51.4	17.20	10	71	13, 24	20	40.6	5.60
Wytheville	11	76	23	26	53.3	2.55	7, 8, 9, 10	68	13, 28	21	39.8	1.25
Staunton	1	74	18, 23	35	53.0	2.88	9	75	13, 14, 24, 28	29	43.8	2.32
Averages					55.5	5.55					45.2	2.93
WEST VIRGINIA.												
Romney	1	78	18	26	51.2		9	76	28	22	42.4	
White Day	2, 7	84	18	26	55.3		8	75	23	26	46.0	
Averages					53.3						44.2	
NORTH CAROLINA.												
Kenansville	14	82	23	38	62.2	11.22						
Goldsboro'	7, 8	82	23. 24	38	61.2	5.00	10	77	24	28	50.1	1.60
Raleigh	1, 14	85	25	35	60.5	3.75	8, 10	78	13, 14	29	49.6	1.45
Oxford	2	78	18, 24	30	56.5	1.80	10	75	14	27	45.6	2.10
Albemarle	8, 12	83	24	28	57.2	5.54	10	82	23	18	44.5	1.00
Statesville	1, 2, 11, 13, 28	70	24	29	54.7	5.25	10	72	23	20	41.6	2.00
Asheville	11, 12	75	23, 24	31	55.6		9	70	14	21	42.5	
Averages					58.3	5.43					45.7	1.63
SOUTH CAROLINA.												
Aiken	8	79	23, 24	42		3.57	11	79	21	33		
Gowdysville	8	82	23, 25	37	62.0		10	78	21	30	51.2	
Averages					62.0						51.2	
GEORGIA.												
Atlanta	12	76	24, 25	35	55.7	8.87	9	74	13, 27	27	44.2	3.12
Macon							10	75	21, 23	31	50.1	0.51
Averages											47.2	1.82
ALABAMA.												
Opelika	11	87	20	43	62.7	9.75	9	78	23	25	48.8	2.94
Carlowville	7	82	24	46	65.4	17.06	9	79	21	28	52.2	3.44
Moulton	1	76	23	24	58.5	1.58	9	69	21, 23	28	46.1	3.00
Greene Springs	7	78	23, 25	39	61.9	7.17	8	72	21	26	47.1	4.17
Havana	1	80	25	40	62.6	10.00	8	73	21	26	48.0	3.45

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ALABAMA—Cont'd.												
		°		°	°	*In.*		°		°	°	*In.*
Fish River	5	83					9	76	21, 22	34		
Averages					62.2	9.11					48.4	3.40
FLORIDA.												
Jacksonville	8	88	24, 26	55	72.9	3.20	10	85	21	35	58.8	0.25
TEXAS.												
Gilmer	3	88	22	38	66.9	2.14	4	80	21	29	51.5	6.68
Houston	7, 14	79	9, 26, 29	60	70.2		3, 8, 9	76	17	55	64.6	
Columbia	14, 15	93	9	47	71.2	3.63	9	88	11	35	58.1	5.97
Waco	6	88	23, 25	47	67.3	4.80	8	83	17	32	54.4	3.05
Austin	5	93	24	45	69.0	4.65	8	83	12	34	55.7	4.17
Averages					68.9	3.81					56.9	4.97
LOUISIANA.												
Benton	14, 16	82	9	42	65.9							
New Orleans	12	86	24	60			9	79	21	42		
MISSISSIPPI.												
Grenada	1, 6, 7	80	23	37	62.6		8, 9	78	21	27	51.3	
Brookhaven	13	82	23	44	63.0		9	79	21	28	51.5	5.67
Natchez	1	80	23	40	66.7	2.85	9	79	21	28	51.5	5.67
Averages					64.1	2.85					51.4	5.67
TENNESSEE.												
Elizabethton	13	80	22, 23	28	56.9		10	74	12	24	42.8	
Lookout Mountain	6, 7, 12	74	9	42	60.1		9	72	20	26	48.7	
Austin	7	82	23	32	57.8	0.75	9	78	12, 19, 23, 28	28	45.2	3.65
Clarksville	7	77	28	33	56.0	1.56	8	74	23	25	44.7	2.02
Memphis	1	85	23	36	59.1	0.06	8	78	23	26	46.8	2.14
Averages					58.0	0.79					45.6	2.60
KENTUCKY.												
Pine Grove	2	78	18, 23	28	54.0	2.02	9	74	12, 20, 23	26	42.4	2.33
Lexington	2	76	18	29	54.2	1.95	9	74	12	24	43.0	3.24
Danville	2	88	18, 23	35	60.4	1.53	9	79	12	24	47.3	2.28
Louisville	2	81	23	30	55.5	1.95	9	76	12, 23, 27	24	44.4	2.26
Clinton	7	78	9	31	55.5	2.25	9	75	23	21	42.8	1.95
Averages					55.9	1.94					44.0	2.41
OHIO.												
New Lisbon	2	76	18	20	51.5	1.19	10	80	3	22	44.5	2.58
Steubenville	7	74	18	27	52.0		9	69	3, 27	29	43.2	
Painesville	7	70	9, 17, 18, 24	32	47.0	2.06	4, 9	56	30	28	40.4	5.55
Milnersville	7	75	23	26	48.7		9	71	27	19	38.4	1.86
Cleveland	7	75	18	29	48.3	1.09	16	66	27	27	40.3	3.73
Wooster	5, 7	78	18	27	51.5	0.52	9	67	27	24	42.2	2.45
Smithville	5, 7	74	18	26	50.3							
Gallipolis	2	80	18, 23	28	53.3	1.15						
Kelley's Island	7	73	23	32	50.8	0.78	4	59	18, 19, 20	31	41.8	2.24

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
OHIO—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Sandusky	7	73	23	25	49.0	1.12	4	59	27	27	39.7	2.57
Norwalk	7, 30	72	18, 23	26	48.8	0.31	3	67	27	27	41.3	1.94
North Fairfield	5	72	23	26	50.2	0.77	4, 14, 15	63	12, 20	27	41.6	2.37
Westerville	5	73	23	21	49.3	0.95	9	70	23	22	40.9	1.35
Marion	7	73	23	21	47.2	0.97	9	67	12, 20, 22, 24	25	39.5	2.10
Hillsboro'	2	72	23	27	50.8	1.24	9	70	20	24	41.7	1.83
Toledo	7	74	23	19	47.9	1.63	13	62	20	25	39.5	2.88
Bowling Green	7	80	23	20	49.9	1.82	3	65	27	23	40.7	3.00
Kenton	7, 13	67	17, 23	36	50.7	2.13	.....	.....	.....	.....	.....	.....
Urbana University	7	75	23	22	49.9	1.17	9	70	12	21	40.4	1.77
Bethel	1	78	23	26	50.5	1.13	9	70	12	22	41.0	1.68
Cincinnati	2	75	23	30	52.5	1.22	.....	.....	.....	.....	.....	.....
Do	5	86	23	34	57.4	1.10	8, 16	70	20	30	46.6	1.16
College Hill	2	75	18, 23	30	57.7	1.19	9	72	19, 20, 24	28	43.2	1.80
Jacksonburg	2	76	23	28	52.7	1.69	9	72	12, 20, 23	26	43.0	2.25
Averages	.....	.....	.....	.....	50.8	1.20	.....	.....	.....	.....	41.5	2.34
MICHIGAN.												
Monroe City	27	68	22	20	40.8	1.07	3	54	6, 27	18	34.1	3.61
State Agric. College	5	69	23	12	45.2	1.11	.....	.....	.....	.....	.....	.....
Litchfield	30	68	17	22	44.6	1.60	3	60	27	21	37.8	2.67
Grand Rapids	30	70	17	24	44.9	.....	13, 14	54	19	21	36.5	.....
Northport		60	22	23	43.1	3.00	3	46	30	24	35.4	3.78
Holland	10	66	22	25	45.3	1.06	14, 15	57	18, 19, 27	25	38.2	5.20
Otsego	10	70	22	24	45.1	.....	8	66	23	26	39.4	.....
Copper Falls	4	62	28	20	36.7	2.87	2	46	30	15	31.3	3.55
Ontonagon	4	64	17	28	43.3	.....	3, 7, 18	46	27	24	36.2	3.60
Coldwater	5, 30	68	23	20	44.7	1.31	15	60	18, 27	22	36.7	3.69
Muskegon		70	23	24	45.2	2.20	3	60	26	24	38.4	3.00
Averages	.....	.....	.....	.....	43.5	1.78	.....	.....	.....	.....	36.4	3.64
INDIANA.												
Aurora	1	80	23	26	52.5	1.05	.....	.....	.....	.....	.....	.....
Vevay	2, 7	80	18	30	54.9	1.30	9	78	23, 27	28	44.1	1.73
Muncie	6	75	17, 23	27	50.4	1.75	15	66	12, 24	23	41.9	2.77
Spiceland	2, 5, 7	73	23	26	50.2	1.20	9	67	12, 24	25	41.0	1.46
Jalapa	30	74	22	29	50.0	0.75	9, 16	62	12	28	42.5	4.43
Indianapolis	7, 30	71	23	26	50.5	1.16	14	67	24	25	41.5	1.29
State University	2, 7	72	18	32	51.6	.....	8, 9	70	12, 27, 29	26	42.1	1.34
Rensselaer	26, 30	71	17	30	51.9	2.50	3, 6	62	1, 17, 18, 23, 27	26	38.9	5.45
Merom	2, 5	76	17, 23	32	54.3	1.35	8	71	11	27	42.6	1.79
New Harmony	2, 7	76	23	33	55.4	1.31	8	75	23, 27	28	44.6	1.96
Knightstown	.....	.....	.....	.....	.....	.....	9	70	12	24	42.3	1.87
Averages	.....	.....	.....	.....	52.2	1.37	.....	.....	.....	.....	42.2	2.40
ILLINOIS.												
Chicago	26	74	8	37	52.9	1.69	3	62	18	26	41.9	2.60
Near Chicago	10, 26, 30	74	17	30	50.2	.....	3	60	19	12	34.3	.....
Ridge Farm	30	75	23	30	51.5	1.40	.....	.....	.....	.....	.....	.....

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	OCTOBER, 1868.						NOVEMBER, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ILLINOIS—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Marengo	30	69	17	17	45.2	1.30	13	62	18, 19	18	36.2	3.18
Golconda	6	89	23	29	66.8	1.10	9	80	12	22	51.9	1.00
Aurora	26	72	17	25	46.2	2.07	3	58	19	13	37.6	2.55
Sandwich	30	72	17	21	46.1	0.95	.....	.....	.....	.....	.....	.....
Belvidere	26	76	17	24	45.8	0.65	4	61	18	14	36.5	3.36
Winnebago	26	75	17	19	45.6	0.80	3	60	18	11	35.6	3.34
Rochelle	36	75	17	18	46.2	.....	3	66	19	10	36.2	.....
Wyanet	1	79	17	22	49.0	1.24	3	70	22	15	39.2	3.57
Tiskilwa	26	72	17	22	48.9	.....	15	62	19	20	39.3	.....
Hennepin	26	78	17	24	51.0	.....	3	64	19	20	38.0	.....
Elmira	26	74	17	24	49.6	0.20	3	64	19	20	38.5	3.20
Peoria	26	77	17	29	51.9	1.41	3	65	17, 19	25	41.3	4.50
Springfield	6	80	8, 9, 17	30	51.6	.....	3, 8	70	17, 18, 20	26	41.1	.....
Loami	.....	.....	.....	.....	.....	.....	7	70	17	22	41.0	5.15
Dubois	5	78	10	24	47.8	1.30	4	65	11	20	40.3	1.52
Waterloo	26	77	8	32	57.1	.....	8	73	19	29	46.4	.....
Lombard Univ'ty	26	75	8, 17	27	48.6	1.14	8	66	17, 18, 19	25	40.4	3.74
Manchester	26	81	17	29	53.3	1.44	7	72	17	23	42.1	3.12
Mount Sterling	6, 25	73	17	28	53.5	.....	7	75	11	24	41.8	.....
Andalusia	5	70	17	26	50.2	.....	3	60	11, 19	24	39.9	.....
Augusta	5	70	17	26	52.2	1.76	3, 15	61	19	25	40.8	5.02
Averages	.....	.....	.....	.....	50.5	1.23	.....	.....	.....	.....	40.0	3,28
WISCONSIN.												
Manitowoc	5	64	17	*25	43.3	2.31	3	57	18, 27	22	36.0	3.04
Plymouth	4	66	17	20	42.0	2.80	3	54	27	17	32.8	4.40
Hingham	5, 27	65	17	20	41.8	.....	3	58	18	17	35.5	.....
Milwaukee	4	67	22	21	45.6	1.18	4	65	18	20	37.0	3.23
Appleton	5	61	17, 22	25	43.1	.....	3	57	27	21	36.4	.....
Geneva	26	72	17	21	45.9	1.35	3	62	18	18	36.1	5.70
Waupacca	4	72	17	22	44.1	.....	3	58	13, 18, 27	20	35.5	.....
Embarrass	5	64	17	20	42.1	2.51	3	56	27	16	31.4	3.53
Rocky Run	4	71	17	17	45.2	1.53	3	60	27	16	34.6	4.94
Edgerton	26	72	17	18	46.5	3.00	3	62	18	16	36.9	.....
Averages	.....	.....	.....	.....	45.2	2.15	.....	.....	.....	.....	35.2	4.14
MINNESOTA.												
St. Paul	4	77	17	16	43.6	4.56	2	57	11	10	31.1	3.68
Minneapolis	4	78	17	19	42.7	4.92	2	59	27	10	30.5	4.13
Sibley	26	70	17	14	43.1	2.25	2	60	27	3	31.3	3.00
New Ulm	4	79	22	23	47.0	2.66	2	62	27	8	32.4	3,73
Sauk Center	4	76	17	14	41.1	1.49	2	57	26	3	27.5	2.73
Averages	.....	.....	.....	.....	43.5	3.18	.....	.....	.....	.....	30.6	3.45
IOWA.												
Clinton	26	80	17	32	52.2	1.20	13	64	18	14	41.0	4.45
Davenport	26	72	17	24	47.8	2.64	.....	.....	.....	.....	.....	.....
Dubuque	26	74	17	27	47.1	1.31	3	60	18	17	37.3	1.18
Monticello	25	75	16	26	45.6	0.65	3	62	11, 17	18	36.4	2.05

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
IOWA—Continued.		°		°	°	*In.*		°		°	°	*In.*
Bowen's Prairie	26	72	17	22	49.0	1.26	2, 15	60	17	18	36.2	4.50
Muscatine	.....	.....	.....	.....	.....	.....	3	61	19	21	38.1	2.71
Fort Madison	30	72	17	25	51.0	1.83	3	65	11, 17	22	42.2	4.02
Guttenberg	26	78	17	16	43.1	.....	3	62	27	12	34.5	.....
Mt. Vernon	26	71	17	19	46.1	.....	14	62	11, 17	18	36.3	.....
State Univesity	1, 26	73	17	25	49.8	0.33	2, 3	63	17	18	38.0	4.38
Independence	26	77	17	16	.....	1.70	2	62	27	14	34.5	1.90
Near Independence	26	76	17	22	46.4	0.06	14	63	27	10	31.9	2.70
Waterloo	26	78	17	14	46.0	.....	2, 3, 14	62	26	14	36.2	.....
Marble Rock	4, 24	70	17	24	47.2	.....	14	54	27	19	34.3	.....
Algona	4	80	8	22	45.2	.....	2	64	11, 26	12	31, 1	.....
Near Algona	4	81	17	19	45.0	.....	.....	.....	.....	.....	.....	.....
Fort Dodge	26	73	17	19	46.6	1.20	2	64	17	18	32.9	1,04
Boonesboro'	25, 26	74	17	20	48.1	0.24	2	64	27	13	33.1	1.52
Rolfe	4	84	22	25	46.7	1.25	2	71	27	7	31.3	1.85
Fontanelle	26	77	17	19	49.0	1.13	14	67	17	14	35.3	1.48
Logan	4, 6	76	17	22	49.4	.....	2	72	27	10	33.6	2.40
Woodbine	6, 26	74	8	18	46.4	.....	2	70	27	10	33.7	.....
Averages	.....	.....	.....	.....	47.9	1.31	.....	.....	.....	.....	35.4	2.57
MISSOURI.												
St. Louis University	5	75	17	33	55.7	1.97	8	73	19	31	45.7	1.90
Allenton	26	83	8	31	54.4	1.90	3, 8	77	23	18	42.9	2.01
Hematite	25	84	9	28	57.3	1.80	8	78	23	19	46.4	2.05
Canton	10	73	8	27	51.8	2.37	3	66	11, 27	26	40.9	5.01
Rolla	5	78	9	32	55.4	1.34	8	75	23	20	42.9	1.47
Jefferson City	25	80	8	30	54.0	.....	7	79	19	26	46.0	.....
Hermitage	6	88	8	30	56.7	1.47	8	81	22	20	42.0	3.35
Warrensburg	6	83	8	28	58.2	2.05	7	73	16	23	42.9	5.01
Harrisonville	6	86	8	28	53.8	2.53	3	72	17, 19, 20	20	40.5	6.20
Oregon	25	83	8, 22	29	55.1	1.68	2	78	19, 26, 27	19	39.1	3.05
Averages	.....	.....	.....	.....	55.2	1.90	.....	.....	.....	.....	42.9	3.34
KANSAS.												
Leavenworth	6	84	8, 22	24	52.3	1.71	2	74	26	16	37.9	5.17
Baxter Springs	5	86	8	34	60.8	2.15	.....	.....	.....	.....	.....	.....
Atchison	6	84	8, 22	28	54.5	8.80	2	78	26	17	38.8	8.40
State University	6	81	22	27	53.1	1.58	2	73	26	17	38.0	4.14
Holton	6	83	22	25	52.4	.....	2	77	26	15	37.7	.....
State Agric. College	6	79	8	32	53.1	2.51	2	71	26	16	38.1	2.72
Council Grove	6	84	22	31	57.7	3,05	2	78	27	20	42.3	3.45
Averages	.....	.....	.....	.....	54.8	3.30	.....	.....	.....	.....	38.8	4.78
NEBRASKA.												
Elkhorn	4	82	7, 17	28	50.6	.....	.....	.....	.....	.....	.....	.....
De Soto	4	81	8	20	49.5	2.17	2	70	26	10	33.3	1.18
Fontanelle	4	88	17	25	52.2	1.60	.....	.....	.....	.....	.....	.....
Bellevue	25	82	8, 17	33	52.5	1.30	2	71	27	17	37.1	0.50
Glendale	4	85	7, 21	25	49.7	1.90	2	75	27	9	33.9	1.90

Table showing the range of the thermometer, &c., for Oct. and Nov.—Continued.

States and stations.	October, 1868.						November, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEBRASKA—Con'd.		°		°	°	*In.*		°		°	°	*In.*
Dakota	2	90	17	22	48.7	.....	2	68	27	7	34.1	.....
Nebraska City	4.6	80	17	33	53.5	6.47	2	71	16, 17, 19, 27	20	38.1	2.10
Omaha	.....	.....	.....	.....	.....	.....	14	73	16, 17	18	37.3	.....
Omaha Agency	4	78	17	26	50.3	1.70	2	73	17	16	36.5	1.36
Averages	.....	.....	.....	.....	50.9	2.52	.....	.....	.....	.....	35.8	1.41
UTAH TERRITORY.												
Wanship	3	75	8	21	54.7	.....	.....	.....	.....	.....	.....	.....
CALIFORNIA.												
Monteray	10	90	30	41	57.1	0.55	.....	.....	.....	.....	.....	.....
Murphy's	8, 9, 10	84	16, 19, 28, 30, 31	32	56.3	0.12	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	56.7	0.34	.....	.....	.....	.....	.....	.....

NOTES ON THE WEATHER—OCTOBER, 1868.

Steuben, Me.—Rain turning to snow on 17th, four inches laid; windows frosted as in winter 18th; much snow still on ground 24th; month colder than usual; potatoes caught by snow.

West Waterville, Me.—Robin seen 10th; snow, two inches, 17th; ground frozen two inches deep 18th; month dry and cold; temperature 2.38° below usual average.

Gardiner, Me.—October unusually cold, nearly 4° below average of 32 years, dryest October on record, except in 1839, when rain-fall was 0.41 inch, in 1859; 1.08 inches.

Standish, Me.—Frost 7th and 10th; snow 17th; ground, and apples on trees, frozen hard, 18th; last part of month cold and rough, ground frozen every morning since 17th.

Norway, Me.—Snow 17th and 21st; the coldest October in several years.

Cornishville, Me.—October temperature of last 39 years averaged 46°; this October, 42.9°.

Lisbon, Me.—Ground frozen hard on 24th, 25th, 27th, 29th, 30th, and 31st; th cold, very little pleasant weather.

Antrim, N. H.—First snow 17th; the coldest October in several years.

Stratford, N. H.—Half inch snow 17th; the month cold and dry.

Goffstown Centre, N. H.—Month peculiarly severe; frost on 3d, ice on 7th, six inches snow on 17th; ice nearly 1½ inch on 18th, freezing thousands of bushels of apples on trees, and many potatoes in heaps and under ground.

Shelburne, N. H.—Ground frozen 10th; an inch of snow 17th; many springs dry and rivers lower than at this season in 20 years.

Lunenburg, Vt.—A raw windy month, but crops harvested in good condition.

Randolph, Vt.—One-half inch snow on 9th; hard freeze 10th; two to three inches snow 21st and 22d; month very dry, with much cloudy weather.

Woodstock, Vt.—First snow 17th; five inches snow on hills 21st and 22d.

Kingston, Mass.—Snowed nearly all 17th, melting as it fell; a killing frost on 18th.

Topsfield, Mass.—Snow-storm on 17th; month closes cool.

New Bedford, Mass.—Foliage coloring and falling 1st to 11th; first snow-flakes 17th.

Worcester, Mass.—Showers 1st, 2d, 3d, 14th, 15th; snow-storm 17th, whitening hills and followed by ice; frost and ice 24th, 30th, 31st.

Mendon, Mass.—First snow, an inch, 17th; ground frozen 18th; snow 23d.

Lunenburg, Mass.—Hard snow-storm 17th; coldest October since 1850.

Amherst, Mass.—Rain with snow 17th; snow with rain 22d.

Hinsdale, Mass.—Two or three inches snow 17th; snowed all day 22d, but much melted; snow 23d; month very cold and unpleasant.

Newport, R. I.—Flurry of snow reported 22d; first white frost 24th.

Pomfret, Conn.—Snow 17th, 23d; coldest October since 1859, when mean temperature was 44.37°; October average for last 16 years, 49.18°.

Columbia, Conn.—Rainy, 2d, 14th, 17th, 19th, 21st, 25th; snow melted as it fell 17th; ground frozen an inch 18th; an inch of snow 22d.

Colebrook, Conn.—Ground frozen 9th; snow, melting as it fell, 17th, 22d.

Waterbury, Conn.—Ground frozen first time 9th; snow flurry 17th.

South Hartford, N. Y.—October cold and wet; fall work retarded; several snow flurries; three inches snow.

Troy, N. Y.—First snow 17th, second 23d; temperature of month 4° below mean temperature of 12 last Octobers.

Newburg, N. Y.—Mountains white with snow 23d; ice, nights of 18th, 23d. 23d.

Deaf and Dumb Institute, N Y.—First ice 9th; first severe killing frost 18th.

Minaville, N. Y.—Ice, thick as window-glass 10th; one inch snow 17th; October had 2.2 inches snow.

North Hammond, N. Y.—Six inches snow 21st and 22d, remained four days; October cold; streams low; St. Lawrence river very low.

Houseville, N Y.—Hoar frost 1st; first snow 16th; copious rain 31st.

South Trenton, N. Y.—First snow 16th; ground frozen hard, 23d.

Depauville, N. Y.—Frost and ice 1st to 23d,; clear, with cold northeast wind, 17th; northeast storm 21st to 23d, rain, but most of time snow, till 2.5 inches laid; ice over an inch 23d. Before 21st ground was dry and ploughing difficult. On 31st gale all day, doing considerable damage.

Palermo, N. Y.—First killing freeze 17th; first snow 22d. The coldest October in 15 years, except 1865.

Volney, N. Y.—First frost 17th; first snow 22d; rain on 11 days, and frost on 9 mornings in October.

Nichols, N. Y.—Many rainy days but no heavy rain. Springs very low.

Buffalo, N. Y—Very light snow 17th, followed by severe frost; 2 inches snow 22d; no thaw in shade 23d; plenty of ice 24th. October colder than average of ten years by 3.4°, and less rain by an inch.

Newark, N. J.—First severe frost 9th; first ice 18th. Temperature more than 3° below 25 preceding Octobers. Much lowery weather, but not much rain.

Trenton, N. J.—Frosts 9th, 12th, 24th, and 25th; first snow 17th; first ice 18th.

Moorestown, N. J.—Rain and snow 17th; ice 18th; corn well ripened, grain sowed, and farmers ready for winter.

Elwood, N. J.—Only four frosts and not a flake of snow in the month.

Dover, N. J.—Month dry; the last day nearly as much rain fell as in September.

Haddonfield, N. J—Ice 18th, 23d, 24th, and 30th; ground frozen 24th and 30th.

Newfield, N. J.—Snow flakes 16th; freezing and frosts 18th, 24th, 29th, 30th, and 31st.

Greenwich N. J.—Mild until 17th; several frosts and some ice after that.

Vineland, N. J.—Month good for securing crops; first killing frost 18th.

Nyces, Pa.—Snow in air 17th; snow-squall 22d; on 31st gale ending in rain, and turning to snow November 1st.

Fallsington, Pa.—Rain or mist on 11 days; light frost 9th; hard frost and ice 18th. Fine weather for the season.

Horsham, Pa.—On 17th dark clouds north, then west wind, and snow flurry, followed by ice half an inch thick, killing vegetation.

Plymouth Meeting, Pa.—First snow 17th; first frost 18th; frost eight mornings and ice three mornings in October.

Dyberry, Pa.—Wild geese 9th; first snow 17th; snowy, after fine rain, 22d.

Whitehall Pa.—Frost on 4 mornings; cloudy and rainy 20 days in October.

Factoryville, Pa.—A few snow flakes, 17th and 22d. A cool, cloudy, dry month; 2.25° colder than four preceding Octobers.

Reading Pa.—A little snow 17th; frosts on five mornings, with ice two of them.

Tioga, Pa.—Severe snow-storm, 17th; ice an inch thick on 18th; apples on trees frozen hard; coldest October morning known here. First ten days pleasant; the rest, the reverse.

West Chester, Pa.—Vegetation not much hurt till 18th; many oaks in brilliant foliage, 28th; fringed gentian still blooming even on northern slopes 31st.

Fountain Dale, Pa.—First killing frost 8th; hard frost 29th; snow-flakes 22d. Month dry and pleasant, but few frosts; foliage still on most forest trees.

Grampian Hills, Pa.—October fine weather; four heavy frosts; trees bare, but pastures pretty good. Water low till heavy rain at the close of the month.

Johnstown, Pa.—First slight snow 17th; heavy frosts 18th, 24th, 29th, and 30th.

Franklin Pa.—First frost and ice 9th; snow and sleet 17th; very heavy frost 18th;

Newcastle, Pa.—Mean temperature about 4° lower than October average of ten years.

Canonsburg, Pa.—Leaves of hickory, maple, &c., coloring 1st; smoky 7th to 15th, and 27th to 29th; a few snow-flakes 23d.

Woodlawn, Md.—White frosts on ten mornings; ice on five; ground frozen on two; snow-squalls on 17th.

Emmittsburg, Md.—First freeze and ice, 9th; snow-squall 17th.

Surry Court House, Va.—The month mostly mild and pleasant, and one-half fair, rain on ten days. From frost to frost (April 6th to October 18th,) six months and 12 days.

Camorn, Va.—Indian summer for three weeks in October; frosts 18th, 24th, 29th, 30th.

Lynchburg, Va.—Frost, killing some tobacco, 9th; a severer one 18th.

Snowville, Va.—First ice and frost 9th; again 18th, 23d, 24th; frost only 25th, 29th, 30th. Sensible earthquake shocks on 10th, at 11.30 p. m. and 11th at 12.30 a. m.

Wytheville, Va.—Five light and five severe frosts; first snow-flakes 31st; weather favorable; corn very good, but slightly frozen; wheat looks more flourishing than for years.

Kenansville, N. C.—Very severe lightning and thunder 9th; cold northeast, storm 10th; killing frost 22d; wind easterly nearly all October.

Goldsboro, N. C.—First heavy frost in last of month; a few light ones prepcede it.

Albemarle, N. C.—First white frost 18th; injured pea and sweet potato vines; killing frost 28th.

Gowdeysville, S. C.—Light frost 18th, injured very tender plants.

Atlanta, Ga.—First hoar frosts, 23d, 24th, 25th, did not sear potato tops.

Opelika, Ala.—First frosts of season, 24th, 25th; tomato and sweet potato vines unhurt by frost. Between frosts, April 11th to October 24th, 195 days.

Carlowville, Ala.—October, one of our driest months, had over 17 inches of rain!

Moulton, Ala.—Slight frost in low grounds 8th, others 23d, 24th. October quite pleasant; little rain; sickness abated; roses still blooming.

Havana, Ala.—Slight frosts 9th, 23d, and 25th; cotton one-half to two-thirds usual crop; corn inferior to last year.

Jacksonville, Fla.—Average October temperature 70.75°; this year 2° higher. No frosts this month.

Gilmer, Texas.—First wild geese arrived 7th; first frosts 9th, 10th, 22d, 23d, 24th, only touching tenderest vegetation; field peas still in blossom.

Austin, Texas.—Grasshoppers appeared 4th; lightning and thunder 19th, 20th.

New Orleans, La.—Heavy rains with lightning and thunder 2d, 3d. From 2d to 12th the river rose 7 feet—unprecedented at this season. After 22d much pleasant cool weather, sultry before.

Grenada, Miss.—First frosts 10th, 23d, did not hurt cotton. But one copious rain, (on 30th,) and 6 light showers.

Brookhaven, Miss.—Crops light, and all gathered; vegetation yet fresh and green; wild geese passing; snow birds and ground sparrows singing; robin redbreast here.

Austin, Tenn.—First frosts 9th, 18th; first ice seen here, 23d.

Clarksville, Tenn.—Rains 7th, 16th, 18th, 19th, 20th, 21st, 27th, 30th, 31st. An unusual prevalence of northerly and easterly winds this month.

Memphis, Tenn.—First frosts 9th, 10th, 23d—22 days earlier than last year; October temperature 2.75° below last year. Foliage falling rapidly.

Pinegrove, Ky.—(Formerly at Chilesburg post office, but the observer's residence the same.) Heavy white frost with one inch ice 9th; slight frost 15th; frost, ice, and ground frozen, 23d.

Clinton, Ky.—Killing frost 9th; katydid heard last 15th.

New Lisbon, Ohio.—Hard frost 9th; first spit of snow, 17th.

Steubenville, Ohio.—A few snowflakes 17th; frost 24th, 30th; thunder storm 25th.

Painesville, Ohio.—The dryest October I ever knew; roads dusty as in August.

Cleveland, Ohio.—Hard frosts 9th, 18th, 24th; sprinkling of snow 22d.

Kelley's Island, Ohio.—October 6th, temperature of Lake Erie 60°; 21st, 52°; 31st, 48°; ice formed 17th, 23d. Mean date of first killing frost for 9 years, November 13th; this year October 17th, nearly a month earlier.

Sandusky, Ohio.—White frosts 4th, 6th; with ice 9th, 18th; slight snow 22d.

Toledo, Ohio.—Severe frost 4th; hail and sleet 18th; the 23d the coldest October morning on record.

Bethel, Ohio.—October 1st scattered oats among peach trees for winter protection; finished sowing wheat 3d; heavy frost 9th.

College Hill, Ohio.—The first part of October cold, the latter part pleasant.

Litchfield, Mich.—Ice 8th, 17th, 18th, 23d; the night of 22d the coldest of the season ever known here. The month very cold and very dry; many potatoes frozen in the hill.

Grand Rapids, Mich.—Hard freeze night of 17th, killing vegetation.

Northport, Mich.—Mild and mostly pleasant till 17th, when ice formed; slight snow and hail 18th, 21st, 22d, then mild till 27th, then a slight snow; also on 31st.

Holland, Mich.—Frost on 9 mornings; flakes of snow 16th, 18th.

Copper Falls, Mich.—A very stormy, unpleasant month; 13th 7 inches snow.

Vevay, Ind.—Dense setting fogs 6th to 11th, and 25th to 29th; rising fogs 12th, 13th, 26th, and 27th; heavy frosts with ice 17th, 18th, and 23d; and on 8th, 2 miles from the river.

Spiceland, Ind.—On the 29th counted 130 solar spots with telescope 6 feet long and 46 inches diameter. Month was generally pleasant.

Jalapa, Ind.—October weather beautiful; potato crop increased beyond expectation; corn, large crop, but grains light and chaffy.

Chicago, Ill.—Some snow 17th; first ice of the season 8th.

Ridge Farm, Ill.—Ice 0.3 inch and ground frozen 9th; ice half inch 16th, 23d. Very dry, roads dusty; corn ripe, but some injured by frost.

Marengo, Ill.—Froze to affect apples 17th, when temperature of well was 48°.

Golconda, Ill.—Light frosts 8th, 9th; heavy 16th. October very pleasant.

Aurora, Ill.—October colder with less wind than usual; crops all secured; much fall ploughing done.

Belvidere, Ill.—Much cloudy weather, little rain; less Indian summer than usual

Winnebago, Ill.—Rain with lightning 6th; lightning and distant thunder 30th. No snow.

Tiskilwa, Ill.—Very hard freeze 17th, ground froze 1 inch, and apple and pear leaves fell before night; Osage orange also, which in 15 years' acquaintance I never knew it to do. Forest leaves fell fully a month earlier than usual.

Hennepin, Ill.—Wood crickets and katydids silenced by the freeze on the 17th.

Dubois, Ill.—Indian summer 3d to 14th; first wild geese 7th; first killing frost 10th.

Mt. Sterling, Ill.—Wild geese flying westward 13th; first snow, very light, 18th; late corn and much fodder injured by frost.

Augusta, Ill.—Froze hard 8th; wild geese 9th, 27th; lightning, west, 30th.

Manitowoc, Wis.—Thunder storms 6th, 7th, 30th; distant lightning 29th.

Plymouth, Wis.—Lightning, thunder, rain, and snow 6th. October weather unsettled; very cool, few Indian summer days.

Milwaukee, Wis.—White frost 4th; hard white frosts 14th, 15th; ice half inch 17th; snow flurry 21st; ice on ponds 22d.

Waupacca, Wis.—Hard freeze 1st; rain and snow 7th; 2 inches snow 8th; snow squalls 18th, 21st.

Embarrass, Wis.—Hard frost and ice 1st; frost, followed by thunder, 4th, 6th; first snow 7th; hard frosts 8th, 12th, 14th, 16th, 17th, 22d, 28th; aurora, 14th, 16th, 17th, 22d; snow and sleet all day 18th; snow, hail, rain, lightning, and thunder 29th; distant thunder 30th, 31st. Month cold, wet, and unfavorable for fall grain.

Rocky Run, Wis.—Thunder, or lightning, or both, sometimes with rain, 1st, 2d, 7th, 14th; aurora 14th, 20th, 21st, 22d; frosts 3d, 16th, 17th, 18th, 21st.

St. Paul, Minn.—Snow 7th; 17th the coldest October day known here. Average mean temperature of October for 40 years, 47°; this year 43.59°.

Minneapolis, Minn.—Thunder storm for 20 hours on 29th and 30th.

Sibley, Minn.—Snow 7th, 17th; heavy thunder storm from 10 p. m. on 29th to 7 p. m. on 30th.

Sauk Centre, Minn.—Frost 1st; snow 7th, 27th, 30th; aurora 16th, 21st.

Clinton, Iowa.—Thunder storm 30th. On the whole a favorable month.

Dubuque, Iowa.—Wild geese 7th; mud frozen solid 8th; frosts 15th, 28th.

Monticello, Iowa.—Diffused lightning, north and west, 29th. Month pleasant.

Fort Madison, Iowa.—Month dry, springs low.

Guttenberg, Iowa.—Lightning and thunder with rain 6th, 30th; without rain 29th; snow 7th, 17th; Indian summer 7th till 12th. Finest month for ploughing I ever knew.

Independence, Iowa.—Frosts 1st, 15th, 17th; hard freeze 8th, 22d, 28th; light snow 17th; light thunder shower 30th.

Marble Rock, Iowa.—Rain and snow followed by freeze 7th; rain and snow 18th; thunder, rain, and hail 29th, 30th.

Algona, Iowa.—Rain, then snow, 7th; hail and snow 12th, then rain 13th; sleet and snow 17th, then rain 18th; lightning and thunder with little rain 29th, 30th, 31st. Crops all good.

Near Algona, Iowa.—Smoky 1st to 6th; frosts on 14 days, dense fogs on 4, rain on 4, and snow on 2; auroras 14th, 16th. Month remarkably cold and unpleasant; mean temperature 4.6° below October, 1867.

Boonesboro', Iowa—Snow squalls 7th, 17th; freezes 8th, 17th; thunder storms 29th, 30th; beside 11 clear days, 11 smoky days, and 6 heavy fogs.

Rolfe, Iowa.—Furious thunder storm 6th; snow storm 7th; thunder storm 29th.

Logan, Iowa.—Frosts killed prairie grass about 20 days earlier than usual.

Fontanelle, Iowa.—Fogs 2d, 3d, 4th; smoky 5th, 6th, and 8th to 19th, and 27th to 31st; sleet and snow 7th; frost and ice 19th, 21st, 27th.

St. Louis, Mo.—High winds and thunder storm 7th; first frost 8th; heavy wind, then frost, at night, 17th. More than half the mornings in October were foggy until 8 a. m.

Allenton, Mo.—Thunder storms, morning and evening, 7th.

Canton, Mo.—Thunder storm 6th; first freeze, severe, 8th.

Rolla, Mo.—Thunder storm 7th; hard frost 8th; ice $\frac{1}{4}$ inch 9th; cold northeast storms 14th, 16th.

Warrensburg, Mo.—Foggy 1st, 2d, 3d, 15th, 19th, 20th; frost and ice 8th, 22d.

Harrisonville, Mo.—Distant diffused lightning 6th; ice 9th; thunder and lightning 13th.

Oregon, Mo.—Heavy fog 1st, 2d, 3d, 22d; lightning and thunder 6th, 14th, 20th; frosts 19th, 22d, 28th; ice 8th, 17th. A 6-pounder fired at Rockport, 35 miles distant, was distinctly heard here and 10 miles southeast of here—45 miles in direct line.

Leavenworth, Kansas.—Fogs 2d, 19th, 22d; continual lightning, north and northwest, at 9 p. m. 6th; sprinkle of snow 7th; thunder 13th, 20th; frosts 7th, 22d, 23d, 27th, 31st.

Holton, Kansas.—Grasshoppers hatching out 3d, eating wheat 24th; wild geese 5th; ice 8th, 17th, 22d; first buckfly (a fall butterfly) 10th.

Council Grove, Kansas.—On 13th tremendous dark clouds covered the northern sky, wind northeast, east, and west; the southern part half covered with mottled clouds; after half an hour's bluster a gentle rain, then a copious one. From 19th to 31st grasshoppers passing, 20 miles off, in every direction; they are laying eggs and eating every green thing.

Elkhorn City, Neb.—Frost 1st; mosquitoes 4th; ground frozen 8th; snowflakes 11th, 17th, 30th; month fine and mild.

Glendale, Neb.—Indian summer 1st to 7th; sleet and snow 7th; hail and rain 17th; October pleasant as usual.

Dakota, Neb.—Driving storm of rain, sleet, and snow 7th; snow 17th, 30th; prairie fires the last half of the month.

Nebraska City, Neb.—Rains from northwest, with lightning and thunder, 13th, 20th.

Wanship, Utah.—Thunder and thunder showers 1st, 2d, 16th; rain, followed by 1½ inch snow, 29th.

Harrisburg, Utah.—Rain and large hail 5th; killed fowls, destroyed vines and fruit-trees, and laid several days; after 5th pleasant; grasshoppers thick and ground full of eggs.

Monterey, Cal.—On 21st, 7.55 a. m., very heavy earthquake from northeast to southwest; a long, heavy shock; cracked adobe walls, stopped pendulum clocks, and set hanging lamps, &c., swinging; at 10 a. m. another slight shock, and at 2 a. m., on 22d, a smart shock.

Murphy's, Cal.—Thunder-shower 4th; slight hail 15th; earthquake at 8 a. m. on 21st, northwest southeast; lasted 5 to 6 seconds; no damage.

Cathlamet, W. T.—Greater part of month foggy and smoky; on 25th heavy rain; put out fires, and ended drought of 4 months.

NOTES ON THE WEATHER.—NOVEMBER, 1868.

NOTE.—We omit all notices of the meteoric display on the 13th to 18th for want of room, except in one or two cases where it is merely referred to in connection with other phenomena.

Lisbon, Me.—November cold and uncomfortable; ground frozen hard; good sleighing 10 miles north, but none here.

West Waterville, Me.—Rain of October 31st closed on 3d November with 3½ inches snow; sleighing 10th, (7 months since last sleighing;) snow-fall 19 inches in November, now 8 inches deep; mean temperature 3.69° below last four Novembers.

Gardiner, Me.—Lightning and thunder 5th; snow 8th, 10th, 24th, 26th; auroras 14th, 15th, 16th, 20th, 22d; a very cold, wet month; 2.38° below average temperature of last 32 Novembers.

Standish, Me.—Trees crushed with ice 10th; aurora 16th; sleighing 19th to 21st.

Norway, Me.—Heavy rains 1st to 3d, then snow; snow 8th, 18th; good sleighing all month after 8th; snow fall, 12.5 inches in November.

Cornishville, Me.—Snow 2d; aurora 16th; mean temperature of 40 last Novembers averages 33.33°; this month, 31.96°; November snow-fall 13 inches.

Concord, N. H.—We have had no Indian summer.

Goffstown Centre, N. H.—Ponds and streams closed 20th; ground now frozen 7 inches.

Shelburne, N. H.—Sleighing 9th to 18th; excellent sleighing after 18th; November snow-fall 18.8 inches.

Lunenburg, Vt.—Month wet; streams full; good sleighing after 19th.

Craftsbury, Vt.—Cold, cloudy month; good sleighing after 18th.

St. Albans, Vt.—First sleighing 18th; first good skating 28th.

West Charlotte, Vt.—Aurora 16th; snow storm 18th; good sleighing 21st; snow gone 30th.

Kingston, Mass.—Rain on 10 and snow on 3 days; remarkable auroral cloud in north-northeast on 14th, at 4 to 5 a. m., during meteoric shower.

Georgetown, Mass.—Fewer wild geese than usual, none seen early, some as late as 24th; streams full by the 11th; but little ice in ponds.

Milton, Mass.—A pleasant month, with Indian summer.

Worcester, Mass.—Rain on 6, snow on 2, and rain and snow on 3 days; aurora on 19th.

Mendon, Mass.—No snow; ground little frozen; grass in yards green; springs lower than usual this month.

Lunenburg, Mass.—Coldest November since 1858, (mean temperature 35.17°,) average mean temperature of November for 40 years, 40.19°; for November, 1867, 35.96°.

Richmond, Mass.—After the brilliant meteoric display of 13th, 14th, we had a few fine autumn days.

Newport, R. I.—First snow, melting as it fell, 5th; rain on 10 days.

Columbia, Conn.—Month quite warm; ground not frozen.

Waterbury, Conn.—On 19th, 10.30 p. m., aurora, white light, narrow streaks, gradually working westward by repeated vanishings and renewals.

Moriches, N. Y.—On 19th faint illumination, low in north, as from aurora. Before sunrise on 21st, lightning, and some heard thunder.

South Hartford, N. Y.—A rough month for out-door work, and farmers, therefore, ill prepared for winter.

Garrisons, N. Y.—Slight snow 1st; aurora 19th; month of very uniform temperature.

North Hammond, N. Y.—Rain 1st, 5th, 8th, heavy 9th, 10th; sleet 17th, and snow 18th; remained on ground till 23d.

Depauville, N. Y.—Thunder 10th; snow 11th; Indian summer 13th, 14th; month even in temperature; 26 days varied only 5° from monthly mean, which was 2.75° below the average of last four Novembers.

Palermo, N. Y—The coldest autumn and November in 15 years; this fall had five inches snow, and 11.7 inches rain.

Nichols, N. Y.—The rainiest November in many years.

Buffalo, N. Y—Snow on five, rain on nine, and frost on four days; mean temperature 2.1° below November average for 10 years.

Newark, N. J.—A few snow-flakes on 2d, the only snow of the month. The average temperature of 25 Novembers, 43.27°; this November, 42.25°.

Moorestown, N. J.—Lightning and thunder south, at 6 p. m. on 20th.

Elwood, N. J.—Thunder all afternoon of 20th in southwest, and at 7 p. m. heavy thunder storm. A delightful fall; no severe cold; little rain, and only a few snow-flakes on 2d.

Dover, N. J.—Pleasant month; no snow to cover ground; only filmy ice, whereas last year we had skating on November 7th.

Newfield, N. J.—Crickets and grasshoppers heard on 10th; ground frozen 13th; thunder-storm of 20th followed by snow to whiten ground, 10 days earlier than last year. Mean temperature 3.5° below last November.

Greenwich, N. J.—Dandelion in bloom 8th; Indian summer 12th to 16th; aurora 19th; thunder-storm 20th; first snow on ground 21st.

Nyces, Pa.—Snow 1st, 2d, an inch; numberless shooting stars 17th, a. m.

Fallsington, Pa.—Lightning, south, 20th; snow-squalls 21st; fine November weather.

Philadelphia, Pa.—First ice in streets 12th; a few snow-flakes 21st.

Horsham, Pa.—Unusual amount of Indian summer this month; ground hardly frozen or whitened with snow.

Whitehall, Pa.—Only 10 fair days, 17 cloudy, and five rainy days.

Factoryville, Pa.—Month cold and wet; rain-fall since April 1st, 1868, 28.61 inches.

West Chester, Pa.—Snow 1st, 21st; ice 12th, 28th; aurora 19th; lightning and rain 20th. Farmers still pasturing their stock.

Fountain Dale, Pa.—Rain on 20th, turned to snow, here nine inches, on west side of the South mountain 16 inches on 21st. This November, like last, was mostly fine and seasonable, (except the very unusual deep snow,) and without the usual high west winds.

Harrisburg, Pa.—Rain and snow 1st, 20th; snow squalls 22d; rain on nine days.

Ickesburg, Pa.—Rain 12 days; snow 11th, 20th, 21st, 30th; lightning and thunder, 10th.

Grampian Hills, Pa.—Month cloudy; some rain; not stormy, with 5.5 inches snow.

Franklin, Pa.—Rainy 10 days; snow on eight days; heavy frosts on 3d and 4th.

Newcastle, Pa.—Mean temperature a few degrees below average; no Indian summer.

Tioga, Pa.—Lightning and thunder 10th; month very unpleasant.

Woodlawn, Md.—Frost six mornings; ice six; lightning and thunder 20th; ground white with snow 21st, 22d.

Surrey C. H., Va.—Shooting stars 5th, 7th, 9th, 12th, 14th; snow-birds 6th; alder and bright-eyed daisy in bloom 12th, 13th; first snow 20th; month fair and chilly.

Johnsontown, Va.—Heavy white frosts on 8 mornings—first snow spit, 20th.

Comorn, Va.—Month nearly all Indian summer; no severe cold; just rain enough; best corn for years; some wheat quite green and tillering finely.

Wytheville, Va.—First snow, slight, 1st—some flakes 20th. Remarkably pleasant month.

Romney, West Va.—First snow 20th; fine fall for farmers; crops all good, especially corn.

White Day, West Va.—Snow 19th, 20th—hail, snow, and rain squalls, 28th.

Albemarle, N. C.—The fairest, dryest month this year; weather excellent for farmers.

Gowdeysville, S. C.—Light earthquake on 3d at 6 a. m.; shook furniture in second story. White frosts and ice 11th to 16th; Indian summer after 29th; month clear and cold.

Opelika, Ala.—First killing frost and first ice 2d; (207 days since the last severe frost;) ice also on 18th and 21st.

Moulton, Ala.—White frost 19 mornings, ice 9 mornings, rain on 3 days, ground frozen on 21st; pleasant, healthful weather for securing crops.

Havana, Ala.—Frost and ice 2d, 18th, 21st; rain 9th, 10th, 24th, 25th.

Columbia, Texas.—Frosts 1st, 2d, 11th, 12th; continuous lightning northeast, afternoon of 15th.

Houston, Texas.—Frosts on 7 mornings; sun rose and set clear on 15 days.

Austin, Texas.—Frosts 5 days; lightning and thunder 15th.

Jacksonville, Fla.—First frost 2d, frost and ice 21st, 23d; winter gardening prosperous; English peas will be shipped north shortly.

New Orleans, La.—First frost, slight, 13th; ice in some localities 21st; aurora 20th; forests bare 30th; 14 severe frosts, some with ice, in November.

Grenada, Miss.—First killing frost 2d; also on 13 days; rain on 6 days, but only one that was copious.

Brookhaven, Miss.—First killing frost 12th; geese passing south 21st.

Clarksville, Tenn.—Very light first snow 19th.

Memphis, Tenn.—Fair days 19, cloudy 6, rainy 5, frost 15 mornings.

Pine Grove, Ky.—Hail and snow 1st; snow 19th, 20th, 21st, all slight.

Lexington, Ky.—First snow 19th, 20th, slight; heavy frosts on 9 mornings.

Clinton, Ky.—Earthquake at 2 a. m., on 14th, rattled windows and awoke sleepers to see meteoric shower. First snow 20th, slight; large breadth of wheat sown and looking well; corn crop finest ever seen here, selling at 30 to 35 cents; hog cholera in a few places; roads firm and dry.

Kelly's Island, Ohio.—Flurries of snow whitened ground 18th, 19th—an inch fell on 20th.

North Fairfield, Ohio.—Snow squalls 11th, 28th, 30th; snow all day 18th, 19th, all melted.

Westerville, Ohio.—Ground white with snow 19th—snowing moderately 20th.

Toledo, Ohio.—Snow, sometimes with rain or sleet, on 9 days; aurora very red 12th. November mean temperature lower than in 9 years, except in 1860.

Litchfield, Mich.—First fall of snow 17th and 18th. November very dry for the season.

Northport, Mich.—Worst fall in 17, if not in 19, years, and November, like September and October, cold, windy, and wet. Buckwheat not harvested—some potatoes yet in ground.

Holland, Mich.—Snow on 8 days, sometimes with rain.

Copper Falls, Mich.—Month very stormy and unpleasant; sleighing for last three weeks; 29½ inches snow fell in November, 16 inches remain; winter a month earlier than usual.

Vevay, Ind.—Light first snow 19th; 14 heavy frosts in November.

New Harmony, Ind.—Very slight first snow 20th.

Knightstown, Ind.—Leaves all fallen 1st; very light snows 10th, 18th, 20th, 28th.

Chicago, Ill.—Heavy frost and first ice 2d; snows 11th, 30th.

Aurora, Ill.—First snow squall 17th; month colder than usual, but good for gathering corn crop and ploughing.

Tiskilwa, Ill.—Snow squalls all day, 1st, 17th, whitened the ground.

Hennepin, Ill.—Weather generally favorable; a few snow-flakes; potatoes gathered, corn nearly so.

Manchester, Ill.—Distant thunder on evenings of 6th, 7th; hard frost 23d.

Mount Sterling, Ill.—Month mild and favorable for farmers.

Augusta, Ill.—Lightning all night, with distant thunder, 7th; first snow, just covered the ground, 17th.

Manitowoc, Wis.—Distant lightning southwest and southeast on 14th, and southeast on 15th, both at 5 a. m.

Plymouth, Wis.—Vivid lightning and distant thunder in east, early morning 14th. No sleighing yet.

Milwaukee, Wis.—Rainy 7th, 8th, 9th; snow flurries 10th, 18th—an inch snow 17th.

Embarrass, Wis.—Bright aurora 3d; faint aurora 10th; ground frozen hard 18th; November very cold, with much rainy and cloudy weather; snow-fall, 11 inches.

St. Paul, Minn.—The fall, as a whole, was more wet and unpleasant than in many years. Snow-fall in November, 10 inches.

Minneapolis, Minn.—Snow, 6 inches, 9th; first ice in Mississippi river 11th; skating on ponds 21st.

New Ulm, Minn.—Minnesota river thick with snow and ice 16th; frozen over 17th; not yet crossed by teams 30th.

Sauk Centre, Minn.—Faint auroras 20th, 25th, 26th; nearly a foot snow on ground—18 inches in November; lakes frozen 3 to 4 inches.

Clinton, Iowa.—Month uniformly low temperature—not very cold—mostly cloudy and quite damp.

Dubuque, Iowa.—Frequent lightning in south, and afterwards thunder, 7th.

Monticello, Iowa.—Diffuse lightning and thunder southwest, evening of 7th; first snow, 2 inches, 17th, (24 days earlier than last year;) farmers ploughing 30th.

Muscatine, Iowa.—First snow 10th; many wild ducks 29th; snow-fall, 2 inches.

Bowen's Prairie, Iowa.—First snow 17th; month cold and unsettled; much corn not yet gathered.

Guttenberg, Iowa.—An unpleasant month for farmers and farm stock. A 23-years' resident says the Mississippi was never before so high at this season.

Independence, Iowa.—Month began and ended fair and pleasant, but for 12 days there was not a ray of sunshine visible.

Marble Rock, Iowa.—Beautiful till 7th, rainy and snowy till 11th, cold and cloudy till 25th, beautiful ever since.

Algona, Iowa.—Mostly rainy and snowy from 7th to 24th, since then pleasant; snow gone and river open.

Boonesboro', Iowa.—Sun shone but two brief intervals between 15th and 26th. November had 14 days entirely cloudy, 9 clear, 6 snow, mist, or rain, 3 smoky; temperature 6 75° below November, 1867, and 1.39° below the average of 13 years.

Rolfe, Iowa.—Thunder storm to northwest, and then snow storm from northwest, 15th; streams frozen 17th; ground now frozen 6 inches deep.

St. Louis, Mo.—First snow, a few flakes, 17th; snow 19th.

Rolla, Mo.—Month a trifle cooler than last year, but extremes less; range last November 89°, this November only 55°.

Hermitage, Mo.—November steadily cold, but no extreme, as in 1867, when thermometer sank to 8° below zero on 30th.

Warrensburg, Mo.—Mild and smoky till 8th; first snow, slight, 9th.

Oregon, Mo.—Diffuse lightning and heavy thunder 8th a. m.; ground frozen an inch 10th; heavy thunder, no lightning seen, 15th; 19th to 29th, thawing, snow and ice, roads very muddy.

Leavenworth, Kansas.—Sharp lightning with rain 8th; snow 9th; thunder storm 15th: from 14th to 25th, dull, cloudy weather, longest spell ever known here.

Atchison, Kansas.—Heavy thunder storm 15th; Missouri river full of floating ice 19th; coldest November in 5 years; snow-fall, 10.4 inches.

Lawrence, Kansas.—First snow 9th; (earliest winter since Kansas was settled;) sudden snow on 16th caught farmers all unprepared; one third of potato crop not gathered; snow-fall 6 inches, more than in all last winter.

Holton, Kansas.—Since 15th the worst November I ever saw here.

Council Grove, Kansas.—Roses, snowballs, and Wilson's strawberries blooming and fruiting on 1st, but latter lack color and flavor; fine hail and rain 9th; ground frozen 10th; 12 inches snow 23d, the deepest snow since admission as a State, yet this November is 3° warmer than any in same period; splendid weather, "bating the snow," 30th.

De Soto, Neb.—Snow ending in rain 9th; distant thunder storm 15th; violent snow storm 16th; Missouri river frozen over 20th.

Glendale, Neb.—Change on 16th from almost summer to midwinter, with 4 inches snow and fierce, chilly winds; 16th to 25th no sunshine, except a glimpse or two on 18th; very unusual weather here.

Dakota, Neb.—Severe snow storm 15th, 16th, 17th; Missouri river frozen over 18th, 12 days earlier than last year; this November 5.69° colder than last; only a light snow last November—this, 13.75 inches.

Omaha, Neb.—First snow 9th; ice 10th, with report of 4 to 6 inches of snow west; warm rain 15th, changed to driving rain from northwest, and violent snow storm on 16th to afternoon 17th; drifts 10 feet high; navigation closed 18th; passengers and mails crossed the Missouri on ice 20th.

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